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ABSTRACT

Presented is the final report of the California State Department of Education on the involvement of 929 gifted children (grades 1-12) in 17 experimental educational programs during the 1958-59 school year. The experimental programs evaluated are divided into three categories: special groupings, acceleration, and enrichment in the regular class. A summary of the final report is followed by five chapters describing the study's origin, development, research design, participating teachers and sponsors, and programs. Subsequent chapters deal with the following topics: identification of pupils; evaluation of pupil achievement; characteristics of the population (including talents and skills reported by parents, and student attitudes revealed in essays); evaluation of pupils by parents, teachers, and selves; and evaluation of the programs by teachers, pupils, and parents. Examined in Chapters 14-19 are reactions to specific programs by pupils, parents, and teachers; evaluation of Ss social relationships and emotional maturity; administrative operation of programs; evaluation of specific programs (by teachers, consultants, and effects on academic achievement); costs of programs; and supplementary studies in five school districts. Various forms used to gather data are appended. Summarized findings indicate that the participating pupils made striking gains in achievement with accompanying personal and social benefits. (LS)

ED100072

EDUCATIONAL PROGRAMS FOR GIFTED PUPILS

A Report to the California Legislature
Prepared Pursuant to Section 2 of
Chapter 2385, Statutes of 1957
by the
CALIFORNIA STATE DEPARTMENT OF EDUCATION

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EC 070 423

Sacramento, California
January, 1961

STATE OF CALIFORNIA
DEPARTMENT OF EDUCATION

January 20, 1961

To the California Legislature:

Pursuant to the provisions of Section 2 of Chapter 2385, Statutes of 1957, we are submitting herewith the report, *Educational Programs for Gifted Pupils,* which was prepared by the Department of Education.

The statute referred to directs the Department of Education to make a study of programs for gifted pupils, to file a progress report with the Legislature on or before January 1, 1960, and to submit a final report on or before January 1, 1961. The progress report presented to the 1960 session set forth the purposes of the study, the manner in which it was planned and organized, and certain of the findings. This final report, in addition to the items covered previously, includes a complete analysis of the data secured during the study and descriptions of educational programs that seem to be most desirable for gifted pupils. The Department of Education is having legislative bills prepared that will carry out certain of the recommendations resulting from the study and will have the bills introduced for legislative consideration at an early date.

The Department of Education is greatly indebted to the members of the special staff that carried out the study, to the members of the advisory committee who participated in the planning and evaluation of the project, and to the various offices of county superintendents of schools and school districts that co-operated in making the study. Without their assistance the project would not have been possible.

Sincerely,

Roy E. Simpson

Superintendent of Public Instruction

ERRATA

Figure 29, page 152: The legends are reversed. The black profile is for the gifted eighth grade boys, the dotted one for the gifted high school boys.

Figure 30, page 153: The legends are reversed. The black profile is for the gifted eighth grade boys, the dotted one for business executives.

Figure 34, page 157: The legends are reversed. The black profile is for the gifted high school boys, the dotted one for the norm for college boys. Also the N for the high school group should be 157.

Figure 36, page 159: The legends are reversed. The black profile is for the gifted high school girls, the dotted one for the college norm population.

PREFACE

This is the final report of a study of educational programs for gifted pupils authorized by the Legislature in 1957 and carried on in three counties in different parts of the state. The project was initiated in September, 1957, and was concluded on June 30, 1960. The experimental programs conducted in connection with the study were carried on during the 1958-59 school year.

The study was carefully planned to include programs that might be adaptable to a variety of school situations. The evaluation of the progress made by pupils enrolled in these programs has meaning and significance for schools in all parts of the state and provides the Legislature and the Department of Education with information needed in order to develop appropriate plans for the education of pupils with exceptional intellectual ability.

The project was carried on by a staff of seven persons, whose names are listed in the beginning of this report. They were able to participate in the study through the courtesy and co-operation of Long Beach State College, the Los Angeles City School Districts, the La Cañada Elementary School District, the San Diego City Unified School District, the Ranchito Elementary School District, and the Office of the Yolo County Superintendent of Schools. Special thanks are due to the chief administrators of these school districts and of the state college and to the Yolo County Superintendent of Schools for releasing personnel to serve as staff members. Thanks are due also to the more than 200 teachers and administrators in the participating school districts and to the county superintendents of schools and members of their staffs who gave so generously of their time and effort in order to ensure the success of the study.

The project staff members were assisted in planning and evaluating the study and in numerous other ways by a state-wide advisory committee and a Department of Education advisory committee. The members of these groups are listed elsewhere in this report. The study was carried on under the auspices of the Division of Instruction of the Department of Education and under the general direction of Jay Davis Conner, formerly Associate Superintendent of Public Instruction and Chief of the Division of Instruction.

Roy E. Simpson

Superintendent of Public Instruction

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Chapter 1

SUMMARY OF THE FINAL REPORT

All phases of the evaluation made of programs for gifted pupils included in the State Study showed conclusively that the special provisions made in these programs were beneficial. Preliminary study of the pupils revealed them to be a population of extremely high ability, with desirable personal and social characteristics. Evaluations made through various tests and through judgments of parents, teachers, and pupils proved that the participating pupils made striking gains in achievement with accompanying personal and social benefits.

PROGRAMS STUDIED

A total of 17 different types of programs were evaluated within the study. These were classified in three categories: (1) *Special Groupings;* (2) *Acceleration;* and (3) *Enrichment in the Regular Class.* Many programs at both the elementary and secondary levels were appropriate for rural as well as for urban schools. The grade levels represented in the study ranged from first through twelfth.

PUPILS STUDIED

The pupils who participated in the study were selected on the basic criterion of a minimum IQ of 130 on the *Stanford-Binet Scale,* an individual mental test. The total number participating was 929, with an almost even division between the elementary and the secondary levels. Boys and girls were almost evenly divided within the study population. Several supplementary groups which were established independently by school districts were evaluated through the use of State Study criteria and materials. These groups added 109 pupils to the study population.

RESEARCH DESIGN

Pupils were placed in a number of experimental programs at each grade level studied, with a single control group for each grade level. The control groups consisted of pupils who had been carefully matched with those of the experimental groups on the basis of intelligence, age, and socioeconomic status, but for whom no special program provisions were made. Statistical allowance was made for initial differences in achievement so that it was possible to measure the effects of the year's program. Comparisons were made on a total group basis at the primary level since the experimental and control groups were highly similar. From the fifth through the twelfth grades, pairs of pupils in the experimental and control groups were matched for group comparisons in achievement and personal-social adjustment.

FINDINGS

The essential findings of the study are summarized as follows:

Academic Achievement

A number of measures were used to evaluate the academic achievement of the pupils. At the primary level the *Gates Reading Tests, Primary and Advanced,* and two staff-devised instruments, the "Formal Arithmetic Processes Test" and the "Pupil Evaluation, Primary Form," were used. The *Sequential Tests of Educational Progress* were administered from the fifth grade through the high school, and high school seniors were given the *Graduate Record Examination Area Tests,* devised for use with college seniors and graduate students.

When compared to pupils in the control group, the first grade pupils who participated in experimental programs made significant gains in reading and arithmetic. At the upper elementary and high school levels, the pupils in 10 out of 12 experimental programs made gains that were significantly higher than those made by pupils in the control group. This was the case despite the fact that the pupils in the control group in many instances also made gains that were higher than would have been expected.

The intellectual power and academic achievement of gifted pupils are shown by the results of the *Graduate Record Examination.* A group of 75 high school seniors surpassed the achievement of the average college senior on tests in the social sciences, humanities, and natural sciences. The performance of the high school seniors was closely comparable to that of college seniors who had majored for four years in the subject areas tested.

Further evaluation of the performance of the 75 high school seniors revealed that students in the experimental group significantly exceeded those in the control group. Therefore, if the comparisons had been made between college norms and the students in the experimental group only, the differences in favor of the high school group would have been even greater.

Characteristics of the Population

Pupils in the experimental and control groups were evaluated on the basis of a number of developmental factors through comparison with the studies of Terman and others. Analysis showed again that gifted children mature far earlier than the general population. Parents reported that 45 per cent of the total group had learned to read before they entered the first grade.

The attitude of the gifted child toward school was regarded by his parents as generally favorable. The majority of needs the parents listed for their children were intellectual in nature. The parents reported a wide variety of skills and talents for their children, with performance in music and art accounting for one-fourth of the total.

Results of interviews with parents, pupils, and teachers. The combined judgments of parents, pupils, and teachers derived from interviews held prior to the experimental year indicated that the pupils had favorable attitudes toward school and that they were well adjusted and well accepted within their peer group.

Attitudes revealed in essays. An essay assigned to assess the attitudes of both the pupils identified as gifted and other pupils toward special planning for bright pupils was written during the regular class period prior to the experimental year. The responses of both groups overwhelmingly favored special plans for the gifted, thereby indicating that the pupils themselves supported the idea. The majority of reasons given by the gifted related to the need for self-realization; the other pupils most often expressed the opinion that gifted pupils need more and harder work.

A second essay dealt with hero-ideals. This essay was assigned for the purpose of exploring the quality and differences in selection of heroes in gifted and random groups to find clues to the values and attitudes of the pupils. The essays revealed that gifted pupils early transcend the immediate environment in their choice of heroes and that the most important reason for the selection of heroes is that of contribution to society.

Evaluation of Pupils by Parents, Teachers, and Selves

A 16-item scale was devised to measure the effects of programs on knowledge, study habits, critical thinking ability, motivation for learning, interpersonal relationships, and self-understanding. Parents, teachers, and pupils evaluated the pupils on these items on the basis of the State Study program. While the pupils started at a high level of performance, they showed growth in all of the areas listed and growth occurred at all grade levels.

Teacher Evaluation of Self and of Program

Evaluations made by the participating teachers twice during the 1958-59 school year showed that the teachers' attitudes toward the special provisions and programs were highly favorable. The teachers thought that their teaching skills and academic knowledge had increased markedly during the year and that they had gained in understanding and appreciation of the gifted. They also thought that the curriculum help and added materials made available to them during the year were of great assistance. The programs, according to the teachers, had been of value in motivating the gifted and also in motivating all of the other pupils in the class groups.

Pupil Evaluation of Programs

Pupils from the fifth grade on were asked to evaluate the programs in which they had participated during the experimental year. Nearly all of them (96 per cent) stated that the programs had been beneficial. Many of them had encountered problems, but over three-fourths favored continuation of their particular programs. The value most frequently mentioned by the pupils was the opportunity to learn and to progress at their own rates. The majority of problems reported by the pupils related to achievement pressures.

Parent Evaluation of Programs

A great majority of the parents (84 per cent) regarded the experimental programs as beneficial. A total of 92 per cent wanted the programs continued, while only 4.5 per cent opposed continuation. The values observed by parents included increased interest in learning, realization of the value of education, intellectual stimulation, and improved personal adjustment. The greatest number of problems reported by parents, like those reported by pupils, were related to achievement pressures.

Evaluation of Social Relationships and Emotional Maturity

Friendship choices. The relationships of the pupils in the elementary grades with their classmates were evaluated to determine the effects of experimental programs. Comparisons were made between pupils in experimental groups and those at the same grade level in control groups. The total group of first grade pupils and the total group of fifth and sixth grade pupils showed significant gains in social status when compared to control pupils who were not involved in programs. The special programs in general appeared to be beneficial to the social status of pupils in the experimental group.

California Psychological Inventory. At the junior and senior high school levels, the California Psychological Inventory was used to evaluate the general emotional maturity of the groups and to determine program effects. The Inventory showed that the gifted at both the junior and senior high school levels resembled college and adult populations more closely than they resembled their own age mates. The striking and consistent early emotional maturity of both gifted boys and girls is in keeping with their early intellectual maturity as measured by the individual intelligence test.

Despite the high initial ratings in emotional maturity, the pupils in the experimental group made many more significant gains on individual scales of the Inventory than did the gifted pupils in the control group. The evidence shows that the gifted who participated in experimental programs showed no ill effects in personal-social-psychological areas.

An analysis of the subtest scales revealed direct relationships between a high value on information and intellectual matters and a sense of personal well-being. The relationships were found to be highly significant; conversely, those pupils having low ratings in well-being were found also to be low in intellectual efficiency.

Administrative Operation of Programs

The five aspects of successful program planning, (1) philosophical acceptance, (2) planned objectives and evaluation procedures, (3) continuity of programs, (4) teacher training, and (5) consultant help, are described in the chapter "Administrative Operation of Programs."

Evaluation of Specific Programs

In the chapter "Evaluation of Specific Programs," each program used in the State Study is evaluated by the teachers and consultants who worked with it. The problems and assets are presented, and these form a background, in essence, for identification of the factors necessary for successful planning. Evaluation results are reviewed briefly.

Costs of Programs

The chapter "Costs of Programs" is devoted to reporting program costs and budgeting limitations. The information in this chapter was used to secure Advisory Committee reactions and recommendations.

Supplementary Studies

Several school districts reported studies which they conducted independently of the State Study. In two of these districts State Study procedures and materials were used, and results were evaluated through the use of State Study controls. Three districts developed their own evaluation methods. All of these studies present interesting information in addition to that gathered in the State Study and support without exception the value of special educational planning for gifted pupils.

Chapter 2

NEED FOR THE STUDY

Early in 1957 the California Legislature directed its attention to the educational needs of intellectually gifted children. The legislators realized the importance of adequate schooling for this group and realized also the importance of sound planning toward this end. They provided, therefore, for a study of educational programs for the gifted which would furnish them a basis for legislative deliberation. The State Department of Education was directed to conduct this study and to report the results to the Legislature.

In taking this approach to an educational problem, the Legislature established an important precedent and set a new and promising pattern for the solution of educational problems. In fact, while the study was in progress several states inquired about the legislation and certain states passed legislation similar to that of California.

NEED FOR PLANNING

The action of the Legislature in providing for the present study gives evidence of the interest of California lawmakers in adequate education for gifted children. Their interest has been shared by a large number of individuals and groups within the state, among them the California Congress of Parents and Teachers, Inc., the American Association of University Women, and the California School Boards Association.

These laymen and California educators are dedicated to the concept that each child has worth and dignity and that he has the right to the fullest development of his unique abilities. It is because of this dedication that a complex school system with many kinds of services has been developed. The facilities, services, and personnel are present for one purpose—the appropriate education of every child.

From the 1920's on, efforts have been made in various school systems to meet the needs of the intellectually gifted children. Especially during the past ten years, school personnel have devoted much time and energy to the child with high learning potential. Part of the effort has been due to added knowledge concerning the complex needs and variability of the intellectually gifted, part to societal needs. Many schools have attempted to make adequate provisions to educate their gifted childen properly.

Up to the present time, a variety of special educational provisions have been made for the intellectually gifted. Some school systems have offered elaborate, continuous programs throughout the grades; others have offered programs for certain grade levels only; and some have offered programs only during specified periods of time. All the school systems have been hampered financially in their endeavor to employ proper research and evaluation procedures. Because of the wide variation in the provisions, it is important to examine the educational needs of the gifted, to assess the strengths and problems contained within various programs, and to arrive at some plan whereby adequate educational opportunity may be extended to each gifted child enrolled in California schools.

EDUCATIONAL NEEDS

The intellectually gifted child is an exceptional child, with exceptional educational needs. He is a rapid developer, rapid to the point that teachers need to make special plans and to provide individualized instruction for him commensurate with his capabilities. Unless his particular needs are met, he faces a problem of inadequate educational development and resultant disinterest.

A central question to be asked is whether educators are meeting or have met the educational needs of the intellectually gifted. For example, can educators plan successfully for pupils in the fifth grade like those within the present study whose average achievement is equivalent to that of pupils in the eighth grade and who in many instances test in achievement at tenth and even twelfth grade levels? What about the pupil in the first grade who reads at fifth grade level and has learned all of the arithmetical concepts and processes contained within the primary curriculum? Can educators adequately meet the needs of high school seniors, like those within the present study, who have exceeded the measured performance of college seniors in certain areas without having spent a day in college? What conditions do educators need in order to ensure that these individuals will be properly educated? Is it possible for the classroom teacher in the usual situation to meet the unusual needs of these pupils? If not, what special help does he need to do so?

RELATED STUDIES

Considerable progress has been made since the early 1920's when educators first realized that the real problem of educational retardation was not that of the child with low ability but rather that of the child with high intelligence.[1] A number of studies, notably those of Terman,[2] have given us insight into the characteristics of gifted children. Other studies, some of which are cited in the following sections, have indicated certain of the learning problems which gifted children face.

Learned and Wood presented evidence that the highest-ranked students at freshman level in college were already beyond the educational level at which a college could serve them effectively, that this situation resulted in deterioration in the students' educational performance, and that for a period of three years they were doing little more than marking time in order to receive degrees.[3] Their study also showed that 17 per cent of the prospective teachers in the senior year of college had lower scores than 31 per cent of the high school science students studied.[4] The results of this study indicate that a number of individuals at all school levels require individualized help and teaching to further their learning.

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[1] Lewis M. Terman, "The Use of Intelligence Tests in the Grading of Children," *Journal of Educational Research*, I (January-May, 1920), 21-22.

[2] Lewis M. Terman and Others, "Mental and Physical Traits of a Thousand Gifted Children," *Genetic Studies of Genius*, Vol. 1. Stanford, California: Stanford University Press, 1926.

A study involving 502 gifted high school graduates in Michigan showed that their classes and courses, on the whole, provided neither the stimulus nor the necessary involvement to make them work to capacity. They did not neglect their class work, but rather did it with little effort while being occupied with other activities.[5] Tyler indicated that the more able students in the eleventh and twelfth grades do not make progress, as shown by tests, but instead turn their energies into extracurricular activities.[6] Studies by Barbe[7] and Gallagher[8] show that gifted students make little use of library facilities, demonstrate poor motivation, and waste an immeasurable amount of intellectual power.

The effect of poor motivation on college attendance is difficult to measure. Other factors undoubtedly operate as well. Regardless of cause, one of the best-known studies has shown that only about half of the top 26 per cent of high school graduates go to college.[9] Since these are the persons who could profit most from college attendance, the waste in resources is appalling.

The studies cited in the foregoing indicate that many gifted students fall far short of meeting the need for self-actualization. The use of potential and the kinds of attainment gained are less in many cases than they should be. When the school fails to interest and encourage individuals to achieve to the full extent of their ability, those individuals undoubtedly live limited and even unhappy lives because of the failure.

THE NEEDS OF SOCIETY

Closely allied to the individual's need to use his potential is the need of society for his ability. Much has been written, particularly since October, 1957, of the need for wise use of intelligence. Society has been willing to recognize and reward the skills and talents of individuals in certain fields. The successful athlete, the movie star, and the crooner have received social adulation and rich remuneration. The successful scholar and research scientist is not generally thus rewarded; rather, he may be regarded with suspicion and his work may be disparaged. The Educational Policies Commission has pointed out that to the extent the American people fail to recognize the superior abilities of gifted people, they deny themselves a measure of the potential benefits.[10]

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[3] William S. Learned and Ben D. Wood, *The Student and His Knowledge*. Bulletin No. 29. New York: Carnegie Foundation for the Advancement of Teaching, 1938, p. 26.

[4] *Ibid*, pp. 42-43.

[5] Paul L. Dressel and John M. Grabow, "The Gifted Evaluate Their High School Experience," *Exceptional Children*, XXIV (May, 1958), 395.

[6] Ralph W. Tyler, "Meeting the Challenge of the Gifted," *Elementary School Journal*, LVIII (November, 1957), 80.

[7] Walter Barbe, "Study of the Reading of Gifted High School Students," *Educational Administration and Supervision*, XXXVIII (March, 1952), 148-54.

[8] James J. Gallagher and Thora Crowder, "The Adjustment of Gifted Children in the Regular Classroom," *Exceptional Children*, XXIII (April, 1957), 319.

[9] Dael Wolfle, *America's Resources of Specialized Talent*. New York: Harper & Bros., 1954, p. 8.

Several surveys have indicated the extent to which society loses through its failure to identify and recognize the person of high potential. Tests given during World War II revealed that many gifted men had never been recognized as such.[11] In 1956, according to the Central Intelligence Agency, the Russians were giving technological training to four men as compared to our three and were training these men as well as or better than we were training ours.[12] At that time we were training half as many scientists and engineers as we needed; and yet more than half of our high schools were not offering either physics or chemistry because of a shortage of teachers. By 1965, the demand for physicians will have risen from 210,000 to 255,000.[13] The areas of greatest shortage within the economy are those that require high intellectual abilities and special training.

What can be done through proper identification and planning? Sidney Pressey [14] describes some provocative possibilities. He points out that the Europe of one hundred to two hundred years ago valued music and musicians. Because of this, a major part of our serious musical heritage came to fruition during that period. Composers and performers including Handel, Haydn, Mozart, Chopin, Schubert, and Mendelssohn began their major contributions at early ages and worked within a general climate of social recognition.

During the 1900's, the greatest recognition of talents and abilities has been made in the field of athletics. In no other field have the talents of the gifted been nurtured as in this area. Promising athletes are identified early, are given recognition, encouragement, opportunities for employment, and skilled, individualized training. Bobby Jones was a state golf champion at fourteen. Sonja Henie was world figure-skating champion, Vincent Richards national tennis singles champion, and Maureen Connolly women's tennis singles champion, each at fifteen years of age.

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[10] *Education of the Gifted*. Educational Policies Commission. Washington, D.C.: National Education Association, June, 1950, p. 11.

[11] *Ibid.*, p. 21.

[12] Norma E. Cutts and Nicholas Moseley, *Teaching the Bright and Gifted*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1957, p. 4.

[13] *Manpower and Education*. Educational Policies Commission. Washington, D.C.: National Education Association, 1956, p. 32.

[14] Sidney Pressey, "Concerning the Nature and Nurture of Genius," *Scientific Monthly*, LXXXI (September, 19[illegible], 123-29.

These gifted musicians and athletes attained recognition because of common environmental factors. In every case, their abilities were recognized early; they were encouraged to develop these abilities; they were taught by highly skilled adults; and they were given opportunity for association with others who had attained success in their field of interest.

Because of individual and societal needs, the recognition and nurture of abilities must extend to many areas of competence. There is need to foster the skills of the potential statesman, the future teacher, the youthful scientist, and the linguist of the future. To do this, educational programs must be offered that provide in full measure for individual talents and abilities.

A significant report, made by a group of eminent scientists to the President, points out the importance of fostering, rewarding, and applauding intellectual excellence.[15] These men contrast the frontier society of one hundred years ago in which physical prowess and bravery necessarily were held in high esteem with the frontier of today, which is intellectual, and where the scholar, the research worker, the scientist, the engineer, and the teacher are the pioneers. They stress the importance of realizing that while the total intellectual capacities of our nation have never really been challenged until recently they are being challenged today. Their message is one of an urgent need to realize that all of the brain power of our population needs full development, that well-trained minds are among the most critical of our national assets and among the most scarce and most valuable of our resources.

While their report is centered chiefly upon scientific needs, the scientists point out the need for high quality leadership in all fields. They made the following statement regarding their own specialty.

> Science, engineering, and technology have obviously been responsible for a host of conspicuous changes at all levels of our modern civilization. There is much reason to expect that such changes will continue and will indeed accelerate. There is no way to turn back the clock or to turn off scientific advance. There will be no international moratorium on science or technology. The people of the United States on the most practical grounds must accept and support these propositions. By ignoring them or by fostering them only with reserve, they could doom their nation to unnecessary weakness and backwardness in a world where other nations are not so foolish. Alfred North Whitehead said in 1916: "In the conditions of modern life the rule is absolute: The race which does not value trained intelligence is doomed . . . ."[16]

Leona Tyler[17] expresses the belief that civilization rests upon the shoulders of its great men. She cites evidence from the research of Cox, who found through biographical study that creative leaders throughout history were of highly superior mental ability. The study gives strong support to the belief that the leaders of tomorrow will come from among the gifted children of the present school generation.[18]

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[15] "Education for the Age of Science." President's Science Advisory Committee. Washington, D.C.: The White House, May 24, 1959, p. 8 (mimeographed).

[16] *Ibid.*, p. 4.

[17] Leona Tyler, *The Psychology of Human Differences*. New York: Appleton-Century-Crofts, Inc., 1956, p. 390 (second edition).

The present study, while limited to a duration of one year within the school setting, is directed toward an identification of practices that may help to bring about proper planning for gifted youth. The pupil population participating in the study during the 1958-59 school year was approximately 1/100 of all gifted youth of California. It is estimated that in the schools of the state there are now between 60,000 and 90,000 pupils who are intellectually gifted. It takes no imagination to visualize the potential for individual and social gain if all these gifted individuals are identified and are given every opportunity for the development of their abilities. The purpose of the present study is to examine means of making essential educational provisions for the gifted and to determine ways in which the provisions may be made.

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[18] *Ibid.*, p. 397.

Chapter 3

DEVELOPMENT OF THE STUDY

In the 1957 session of the California Legislature, Assembly Bill 959, sponsored by Assemblyman Carlos Bee of Hayward and cosponsored by Alan G. Pattee, Salinas, Ernest R. Geddes, Claremont, Dorothy M. Donahoe, Bakersfield, Montivel A. Burke, Alhambra, Charles E. Chapel, Inglewood, Louis Francis, San Mateo, Samuel R. Geddes, Napa, Charles W. Meyers, San Francisco, Carley V. Porter, Compton, and Bruce Sumner, Santa Ana, was introduced to provide for a study of special programs for gifted pupils, to determine the costs and special administrative problems involved in such programs, and to determine the possible benefits to be derived by pupils for whom the programs are provided.

Assembly Bill 959 was subsequently incorporated into Senate Bill 62, which provided for a companion study on programs for the emotionally disturbed. This measure was sponsored by Senators James J. McBride, Ventura, Stephen P. Teale, West Point, and Louis G. Sutton, Maxwell. Senate Bill No. 62 was signed by Governor Knight on July 16 and became effective on September 11, 1957.

Section 2 of Senate Bill 62, which authorized the present study follows:

> *Sec. 2.* The State Department of Education of California is hereby authorized and directed to make a study of special educational programs designed to meet the need of gifted pupils in the public schools of the State. The study shall, among other appropriate matters, analyze the need for special enrichment programs for gifted pupils, the costs of such programs, and the possible benefits to be derived by pupils who are provided with such special programs. A preliminary report of the study shall be provided to the Legislature on or before January 1, 1960, and the final report shall be provided on or before January 1, 1961.

The bill also authorized the establishment of a ten member advisory committee on the project staff and the expenditure of $40,000 during the first year of the three-year study.

On September 12, 1957, Roy E. Simpson, Superintendent of Public Instruction, appointed a project co-ordinator for the study. Headquarters for the study project were established in the State Department of Education building in Sacramento.

The activities first undertaken included the development of (1) a preliminary outline of purposes and procedures to be followed in making the study; (2) criteria for the selection of study centers; (3) criteria and materials for the identification and study of intellectually gifted pupils; (4) plans for the programs to be studied; (5) evaluation procedures; and (6) a general plan of operation. A number of contacts were made with school administrators to develop preliminary plans for programs within the study framework and to plan for the reporting of auxiliary studies.

ADVISORY COMMITTEE

An advisory committee of ten members was provided for in Section 4 of Senate Bill 62. The duties of this committee were to assist in the formulation of the project design and in the evaluation of the outcome. Roy E. Simpson, Superintendent of Public Instruction, appointed the following persons to serve on this committee:

Mrs. George Alpers, Member, Marin County Board of Education, and Special Education Chairman, California Congress of Parents and Teachers, Inc.

Lee Cain, Vice President, San Francisco State College

Harold D. Carter, Research Associate, Institute of Child Welfare, University of California, Berkeley

Adolfo de Urioste, Member, Board of Education, San Francisco City Unified School District

Mrs. Charles S. Goode, Member, Board of Education, Grossmont Union High School District, San Diego County, and State Education Chairman, American Association of University Women

Henry M. Gunn, Superintendent, Palo Alto City Unified School District

George Hall, Assistant Superintendent, San Diego City Unified School District

Donald J. Kincaid, Co-ordinator of the Programs for the Gifted, Los Angeles City Elementary School District

Mrs. Marian Scheifele Conde, Principal, Greenbrae Elementary School, Kentfield Elementary School District, Marin County

May V. Seagoe, Assistant Dean, School of Education, University of California, Los Angeles

In addition to the ten member committee authorized by Senate Bill 62, the following nine members of the California State Department of Education were appointed to serve as a departmental advisory committee:

Laurence L. Belanger, Consultant in Guidance, Bureau of Guidance

Genevie Dexter, Consultant in Physical Education, Bureau of Health Education, Physical Education, and Recreation

John R. Eales, Consultant in Secondary Education, Bureau of Secondary Education

Melvin W. Gipe, Consultant in Education Research, Bureau of Education Research

Donald E. Kitch, Chief of Supplemental Education Services, Division of Instruction

Dorothy M. Knoell, Consultant, State College Curricula, Division of State Colleges and Teacher Education

Mrs. Lorene E. Marshall, Consultant in Elementary Education, Bureau of Elementary Education

Ernest Willenberg, Chief, Bureau of Special Education, Division of Special Schools and Services

Robert L. Woodward, Consultant in Industrial Arts Education, Bureau of Industrial Education

Mr. Kitch was named chairman of the combined advisory committee consisting of the two groups.

The members of the combined committee met with the staff members of the project on December 6 and 7, 1957, July 29, 1958, and May 15, 1959, and gave valuable assistance on all phases of the project.

The school districts selected to participate in the study had pupil populations ranging from 19 to more than 450,000 and represented different types of school district organization. They were in Stanislaus, Los Angeles, and San Diego counties. The districts were thus chosen in order to meet effectively the requirements specified in Senate Bill 62. The following criteria were used as a basis for selecting the districts:

1. Representation of rural, semiurban, and urban areas
2. Representation of varied geographic locations
3. Established interest in the program of helping intellectually gifted children and youth
4. Possibilities for varied program approaches
5. Administrative and school board support of the pilot study
6. Local staff support of the project, including the designation of a liaison person
7. Community understanding and acceptance of the study project

Table 1 lists the school districts participating in the State Study, their average daily attendance, and the major industries in the areas where they are located. The participating districts represent both northern and southern California; and they represent communities of diverse interests, backgrounds, and composition. Although the total community population in each instance is not shown in the table, the wide range of community size in relation to average daily attendance is evident.

A second group of school districts participated in the study by furnishing pupil data for comparison purposes.[1] These districts follow:

Downey Union High School District, Los Angeles County
Baldwin Park Unified School District, Los Angeles County
Little Lake Elementary School District, Los Angeles County
Ceres Elementary School District, Stanislaus County
Oakdale Union Elementary School District, Stanislaus County
Cajon Valley Union Elementary School District, San Diego County
Sacramento City Unified School District

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[1] In addition to the superintendents of these school districts, the following persons gave valuable assistance: Harold Reed, Reginald Corder, Robert Elliott, and Frances Milnes.

There was a wide range of economic and cultural advantages in both urban and rural areas studied. The children in the study came from small and large farms, from sparsely populated, rather isolated areas and heavily populated areas, from crowded industrial sections, and from spacious residential areas. The general school population in California is adequately represented in the study sample.

In addition to the school districts participating in this study, several districts supplied their own research information, which is summarized in the reports contained in Chapter 19, "Supplementary Studies." One

TABLE 1

School Districts Participating in the State Study, Their Average Daily Attendance, and Major Industries in the Area Each District Was Located

County	School district	1957-58 average daily attendance[1]	Major industries in each surrounding area[2]
San Diego	Chula Vista City Elementary	9,624	Aircraft, tuna, agriculture
	La Mesa-Spring Valley Elementary	8,623	Small manufacturing, agriculture
	Grossmont Union High	7,591	Small manufacturing, agriculture
	San Diego City Unified	94,599	Aircraft, tuna, shipbuilding, U. S. Navy
Los Angeles	Hawthorne Elementary	4,725	Aircraft, small industry
	Manhattan Beach City Elementary	5,292	Small industry
	Montebello Unified	13,477	Diversified
	Los Angeles City Elementary	339,499	Diversified
	Los Angeles City High	111,643	Diversified
Stanislaus	Denair Unified	359	Turkeys, fruit, dairying (for entire county)
	Empire Union Elementary	630	
	Gratton Elementary	54	
	Grayson Elementary	219	
	Hart-Ransom Union Elementary	419	
	Hughson Union Elementary	767	
	La Grange Elementary	19	
	Modesto City High	4,326	
	Newman Elementary	609	
	Paradise Elementary	107	
	Patterson Elementary	751	
	Salida Union Elementary	442	
	Stanislaus Union Elementary	479	
	Sylvan Union Elementary	674	
	Valley Home Joint Elementary	114	
	Waterford Elementary	486	
	Waterport Union Elementary	304	

[1] Source: *Apportionment of the State School Fund—Part I.* Bureau of School Apportionments and Reports. Sacramento: California State Department of Education, December, 1958.

[2] Source: Local Chamber of Commerce publications.

of these districts, San Luis Obispo City Elementary School District, utilized all of the State Study materials and procedures in its supplementary study. This district is in a small community that forms the hub for an agricultural area. The average daily attendance of San Luis Obispo City Elementary School District during the school year 1957-58 was 2,394. Another district, Redwood City Elementary School District (a.d.a., 1957-58—10,418), is in a small community with diversified business. A third district, Long Beach Unified School District (a.d.a., 1957-58—89,331), is located where there is a large amount of manufacturing and a large port. A fourth district, Oakland City Unified School District (a.d.a., 1957-58—56,567), is also located in an area where there are many manufacturing establishments and a large port.

There were two school districts, Los Angeles City Elementary and City High School districts, that, in addition to participating in the State Study, conducted several supplementary study projects in which the State Study evaluation materials and procedures were used. The findings of these projects are summarized in Chapter 19.

Chapter 4

RESEARCH DESIGN

Senate Bill 62 assigned the State Department of Education the tasks of (1) analyzing the need for special programs for gifted children; (2) determining the possible benefits to be derived from such programs; and (3) determining the costs of the special programs. The plans and procedures that were employed in making the required study were designed for the express purpose of carrying out these tasks in an effective way—of supplying the information required by the Legislature as directly and as completely as possible.

The research design of the study consisted of the basic set of plans and procedures adopted for executing the study project. Analyzing the need for special programs for gifted children and determining the possible benefits of such programs required a research design that would obtain answers to a number of questions concerning programs of this type and their effects upon pupils and upon others. The determination of costs involved a careful accounting of personnel time, equipment, materials, and other factors.

The following are significant questions that might be asked about special programs for intellectually gifted children.

1. Have the pupils shown academic growth beyond that which would normally be expected?
2. Has the program had a beneficial effect on the personal and social adjustment of the pupil?
3. What problems and values are involved in the conduct of the program?
4. What are the attitudes of parents, teachers, and pupils toward the program?
5. What administrative techniques and processes must be employed to ensure the success of a program of this type?

In order to obtain meaningful answers to these questions, the study project personnel selected pupils from a wide range of grade levels to participate in special programs. (See Table 2 in Chapter 6.) The special programs were selected (1) after a careful study of the literature regarding programs for gifted children had been made and (2) after a survey of practices in California schools with regard to such programs had been conducted. The programs finally chosen were those that represented the major types of programs for gifted children being provided in California schools. The selection was made in this way so that the special programs conducted during the course of the State Study would be of such variety and content as to be adaptable to schools of all sizes and types within the state.

As was pointed out in the previous chapter, the pupils for the State Study were chosen from three counties that have populations typical of many other parts of the state. In each instance every effort was made to select typical programs and to have a pupil population that was representative.

PUPILS IN THE EXPERIMENTAL GROUP

Pupils in the experimental group in the State Study were involved in enrichment, acceleration, and special group programs from the first grade through the twelfth grade. The pupils were selected on the basic criterion of a minimum IQ of 130 on the Stanford-Binet individual mental test. From that point on, they were given all of the tests used in the study.

PUPILS IN THE CONTROL GROUP

Pupils in the control group in the State Study were selected on the same basis as those in the experimental group. From the pool of pupils in the experimental and control groups, pairs were matched according to chronological age, IQ, sex, and socioeconomic status. The maximum age range was six months; the maximum IQ range, five points. The initial academic performance variations were controlled statistically. The one factor that theoretically differed for the controls was that they were not subjected to a program beyond the identification phase.

The word "theoretically" is used because actually some of the control group were given experiences not planned for by the State Study staff. These experiences, unusual to the school program, were documented in order to place the relationship of experimental and control groups in the proper light. The added experiences undoubtedly resulted from the desire of school people to improve the educational offerings for all gifted children. This zeal created problems for the study project.

The pupils in the control group were identified during the spring of 1958 and supposedly were not identified to the teachers who had them during the ensuing school year. In one school district, however, the teachers were asked by their principals to work closely with the controls and to furnish descriptive information concerning them. In another instance, children in the control group and children in the experimental group were grouped with the same teacher in the same classroom. This situation was changed when it became known. The work of several of the primary children in the control group was accelerated when their abilities became known. Occurrences such as these indicated that the program differences between children in the experimental group and those in the control group became less marked.

At the upper elementary level, some children were affected by district-wide accelerated programs in selected subject areas. In one case, children were grouped in such a way that they were in effect participating in a cluster-group program.

At the junior and senior high school level, problems were related to the increasing efforts of school districts to offer accelerated programs. One junior high school control group was involved in advanced mathematics and science courses. Two-thirds of one control group at the high school level took advanced courses, and two of the students in this group attended junior college classes.

These problems are not presented as rationalizations because rationalization is not necessary. Even in certain cases where the same special program was offered to pupils in a control group and pupils in an experimental group, it was found that the work of the experimental group showed significant gains over that of the control group. (See Chapter 8, "Evaluation of Pupil Achievement.") Problems such as these are cited to show that the gains made by the experimental group were actually dramatic ones. The great gains made by the experimental groups apparently were due to the fact that the pupils were included in continuous, complete, and well-organized programs and that special consultant help was utilized in conducting each of these programs.

GROUPING

As stated earlier, pupils in the control and experimental groups were matched on several factors.[1] The matching involved also two arrangements. One arrangement involved groups matched in such a way that the group means and standard deviations were identical, or nearly so, on the matching variables already mentioned. The other arrangement involved the matching of pairs of pupils so that they would be closely comparable on all variables. The latter matching made possible added statistical treatment of the data.

EVALUATION

Evaluation materials and procedures that would enable the members of the study staff to answer adequately the questions listed in this chapter were selected with care. In relation to certain aspects of the programs, it was necessary to devise specific instruments, and these are reproduced in this bulletin in Appendixes A through R. In addition to these instruments, standardized tests were used to evaluate achievement and personal adjustment. These included the *Gates Reading Test, Primary and Advanced Primary*,[2] the *Sequential Tests of Educational*

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[1] A table of matching variables appears in Chapter 17, "Evaluation of Specific Programs."

[2] Arthur I. Gates, *Gates Primary Reading Tests*, Grades 1-2.5, and *Gates Advanced Primary Reading Tests*, Grades 2.5-3; 1926-58. New York: Bureau of Publications, Teachers College, Columbia University.

Progress,[3] *the Area Tests of the Graduate Record Examination,*[4] and the *California Psychological Inventory.*[5] After study and consultation with experts, these tests were chosen to perform the following functions:

1. In achievement, to give as comprehensive a measure in academic areas as possible
2. To provide adequate test difficulty in academic areas
3. In personality, to measure factors which should be considered in evaluating the adjustment of intellectually gifted pupils

The achievement tests at the primary level measured several reading skills. At the higher grade levels, they measured academic performance in reading, mathematics, social studies, science, listening, and writing. According to their manuals,[6] the tests were designed to reveal special strengths and weaknesses and to measure the ability to apply knowledge in solving new problems.

The personality inventory (1) contains 18 scales that are intended to provide a comprehensive survey of an individual and (2) is designed for use with normal (nonpsychiatrically disturbed) subjects. The scales measure those personality characteristics important for social living and social interaction.[7]

The *Graduate Record Examination Area Tests*[8] in the social sciences, natural sciences, and humanities are designed for college seniors and graduate students. They were selected to provide an adequate criterion measure of the actual achievement of gifted high school pupils.

The results of the achievement tests were evaluated through a comparison of mean scores on the entire battery, before and after the experimental year. In all cases in which the *Sequential Tests of Educational Progress*[9] were used, the pupils took the battery designed for individuals who are several grades ahead. For example, the children who were finishing fourth and fifth grades in May, 1958, took the test battery designed for grades seven and nine, and those in seventh grade took the battery for grades ten and twelve. The advanced batteries were used to ensure that pupils would be measured adequately in achievement without test-ceiling problems occurring. That the choice of advanced batteries was a proper one was confirmed by the eagerness, interest, and enjoyment with which the pupils took the examinations, despite the misgivings of some school personnel as to such procedure.

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[3] *Sequential Tests of Educational Progress,* Grades 4-6, 10-12, 13-14; 1956-58. Also called *STEP.* Princeton, New Jersey: Co-operative Test Division, Educational Testing Service.

[4] *Graduate Record Examinations: The Area Tests.* Sophomore year college through graduate school; 1954. Princeton, New Jersey: Educational Testing Service.

[5] *California Psychological Inventory.* Ages 13 and over; 1956-57. Palo Alto, California: Consulting Psychologists Press, Inc.

[6] *Manuals for Gates Primary and Gates Advanced Primary Reading Tests.* New York: Bureau of Publications, Teachers College, Columbia University, 1943; and *Manuals for Sequential Tests of Educational Progress.* Princeton, New Jersey: Co-operative Test Division, Educational Testing Service, 1957.

[7] *Manual for California Personality Inventory.* Palo Alto, California: Consulting Psychologists Press, Inc.

[8] *Graduate Record Examinations: The Area Tests, op. cit.*

[9] *Sequential Tests of Educational Progress, op. cit.*

The groups which had been matched were compared to determine the value of special programs in effecting growth beyond that which would normally be expected. Ideals, attitudes, skills, and information were evaluated by various methods. Statistical procedures that allowed for initial differences and that evaluated growth changes accurately were employed.

Chapter 5

TEACHERS AND SPONSORS WHO PARTICIPATED IN THE STUDY

A total of 187 teachers participated in the experimental programs during the 1958-59 school year. Less than one-third (60) taught in the junior and senior high schools; the largest number (71) taught fifth and sixth grades. The large number of elementary teachers is accounted for by the fact that the pupils at that level were more widely distributed among schools than those at the secondary level. The actual number of pupils was almost the same at each of the two levels.

The request was made to school administrators that pupils in both experimental and control groups be placed with teachers considered above average in teaching ability. The simple criteria outlined for the administrators for selecting teachers for the gifted included estimation of (1) the breadth of their academic backgrounds and interests; (2) their intelligence, (3) their interest in learning; and (4) their interest in the education of gifted children.

The community sponsor program, described in Chapter 6, "Programs Involved," was under the guidance of 23 members of the community with special qualifications in information or skills.

TRAINING AND EXPERIENCE OF TEACHERS

The training level of the teachers chosen to work in the study was sufficiently high to make it apparent that considerable attention was given to selecting the teachers.[1] Nearly half of the group (41.4 per cent) had taken academic training beyond the bachelor's degree. The master's degree was held by 15 per cent of the teachers, and 4.8 per cent had either taken 60 or more units beyond the master's degree or held the doctor's degree. Of the 9.6 per cent who had less than the bachelor's degree, all but three were residents of rural areas. Over two-thirds of the teachers (70.3 per cent) held bachelor's degrees and had completed up to 60 units of work beyond this degree.

The teachers as a group were experienced in the profession. Only 12.8 per cent of the group had two or fewer years of experience. Of the remainder, 21.9 per cent had three to five years of experience; 15.5 per cent had six to eight years; 8 per cent had nine to eleven years; and 42.2 per cent had twelve or more years. The pupils in the study group were therefore taught by teachers who had a fairly high level of training and considerable professional experience. These teachers undoubtedly were more able to absorb the extra demands of an experimental year than if they had been relatively untrained and inexperienced.

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[1] Faculty members at University of California, Los Angeles, are not included in the group from which these data were derived.

PARTICIPATING PERSONNEL

The names of the school districts in which the State Study programs were conducted and names of the teachers who were selected to work in the programs follow:

LOS ANGELES COUNTY

Hawthorne Elementary School District

Fanjoy, Beatrice
Greene, Barbara,
Hagman, Elaine
Hilton, Corby
James, Dorothy
Jones, Ann
Klein, Paul
La Bounty, Wilda
Lenz, Kathryn
Maguire, Sara Jo
Parks, Maude
Shively, Joan
Sparks, Geraldine
Watson, Lucille

Los Angeles City School Districts

Adams, Selena
Arnold, Allyn
Beamish, Douglas
Bleifeld, Florence
Breckenridge, Edwin
Broderick, Mary
Chatterton, Ruth
Chiella, Sara
Christianson, Lucille
Cohen, Muriel J.
Downey, Joan Maguire
Finney, Frances
Getze, Roland
Gunn, Edith
Hamren, Joan
Hurley, Patricia Anne
Knight, Gay VanderVelde
Lamb, Jane Marie
Lasley, Helen Imgarten
Lubberden, Verle
MacDonald, Virginia
Maussnest, Maxine
McDonald, Catherine
McDonald, Muriel
McLaughlin, Jacqueline
Mickley, Mary Lou
Paxton, Evelyn
Pello, Alvena
Pelzell, Sophie
Perkins, Dorothy Fontaine
Plough, Ruth C.
Priestly, Ruth
Pruss, Mable J. Ahlsten
Quigley, Charles
Rankin, Edyth Tuggle
Rosenwein, Clara
Shinn, Catherine
Smith, Maryl
Smith, Merle
Tomberlin, Mary H.
Trudelle, Carol
Vickman, Myrna
Wallis, Beatrice
Warren, Leonard
White, Nell C.

Manhattan Beach City Elementary School District

Bennett, Betty R.
Bougens, Adaline
Bright, Josephine M.
Cameron, Margaret
Davidson, Barbara
Detloff, Doris M.
Halprin, Diane
Kagiwada, Nina
Rockefeller, Barbara
Rosenthal, Marlene
Stepner, Angela
Stevenson, Gayle
Stovall, Dolores Flood
Tripodes, Bernice
White, Shirley T.
Zerman, Marge

Montebello Unified School District

Cartwright, Olga Augspurger
Henderson, Eileen
Odam, Lucille Lynn
Preisler, Marie Teresi
Spelman, Elizabeth B.

SAN DIEGO COUNTY

Chula Vista City Elementary School District

Allen, Ruby
Atkinson, Estelle
Bolling, Rex
Butler, Ruth
Davis, Bea
Dean, Martha Lou
Fuqua, Lucille
Golden, Sarah
Johnson, Susan
Kaiser, Anne
Keller, Opal
Leavitt, Gertrude
Moeller, Lucille
Oliver, Susan
Sirak, Dorothy
Vasquez, Gladys
Wright, Elizabeth

Grossmont Union High School District

Kintzelle, Ed
Mayrhoffer, Al

La Mesa-Spring Valley Elementary School District

Blake, Betty
Cross, Margaret
Hendrickson, Felice
Jones, Barbara
Larson, Elgie
Lewis, Fern
Steinhoff, Vera
Wagner, Gladys
Wiley, Miriam

San Diego City Unified School District

Anderson, Lucille
Bruner, Beatrice
Calloway, Guy
Case, Ruth
Dean, Robert
Dirksmeier, Anne
Elliott, John
Elliott, Marion
Finch, Margaret
Hankins, Donald
Hendricks, Robert
Howard, Marjorie
Johnson, Shirley
Jones, David
Kujellis, Mary
Lane, Charles
Lewis, Charles
Miller, Fern
Moors, Allen
Pepper, Johnnie
Phalen, Therene
Press, Robert
Raborn, Caroll
Rainwater, Genevieve
Scott, Mary
Skidmore, Isabelle
Swenson, Agnes
Tait, Elma
Warner, Adelaide
Weirather, Hal
Woodruff, Milton

STANISLAUS COUNTY

Empire Union Elementary School District

Felicky, Ann
Robertson, Hazel
Schock, Keith

Hughson Union Elementary School District

Cripe, Carl
Jericoff, Alfred
Lippert, Esther
Neville, Theodore

Modesto City School Districts

Antonio, Ruth
Black, Charles
Cohen, Nathan
De Wolf, Nick
Earle, Fred
Hannah, Jean
Holmberg, Malcolm
Jumper, Will
Lafaille, Leon
Mickelson, Milton
Moriconi, Ralph
Muench, Frank
Osner, Henry
Parsons, Mark
Pavko, Stan

Phillips, Mary
Pierce, James
Ralph, Richard
Roe, Donald
Shepherdson, A. Wayne
Smith, Wilma
Spence, Norvin
Sprietsma, Lewis
Squires, Henry
Sternberg, Morris
Tucker, Roy
Waterman, David
Waymack, Rex
Whitaker, John
Wilburn, Charles
Wilson, Lester

Patterson Elementary School District

Gilbert, Al
Hicks, Berta

Larsen, Helen
Nicolds, Pearl

Stanislaus County Superintendent of Schools Office

Fowler, Betty
Hale, Arthur
Tallmon, Violet

Sylvan Union Elementary School District

Middleton, Betty
Von Rotz, Minna

SAN LUIS OBISPO COUNTY

San Luis Obispo City Elementary School District

Butzbach, Ora

The names of the instructors at the University of California, Los Angeles, who assisted with the experimental programs are as follows:

Alexander, John
Atkinson, Richard
Drexler, George
Graubert, Erik
Halpern, Joel M.
Hargreaves, Phyllis
Kaplan, Abraham
Letessier, Madeleine
Meyerhoff, Hans
Passinetti, Pier-Maria
Pollack, Slava
Prose, Jack
Richard, Yvette
Richman, Sidney
Rogers, Kenneth
Stussy, Jan
Todd, Michael
Wessner, Ralph

The following are the names of the 23 community sponsors who were chosen to work with gifted pupils in the State Study programs:

Abst, Ray
Barnett, Isabelle
Erikson, Jay A.
Hansberry, Roy
Hudson, Roy
Huff, Robert
Hurd, Igerna
Jarvis, D. Conrad
Johnson, Fred M.
Johnston, Herbert V.
Legator, Marvin
Lyon, Robert
Osner, Henry
Ott, Stanley
Painter, Margaret
Peron, Lena
Phillips, Donald
Pierce, James
Porter, Paul
Radee, William E.
Sun, Y. P.
Thill, Donald
Van Overbeck, Johannes

Chapter 6

PROGRAMS INVOLVED

In its first meeting, the Advisory Committee suggested that a range of programs be explored in the three general areas of (1) enrichment in the regular classroom; (2) planned acceleration; and (3) special groupings, with as wide a representation of grade levels as possible. The chief criterion in exploring the programs was to select those that could be used successfully in schools of various sizes and types. An important additional criterion was that of selecting programs that districts of different sizes and in different locations would accept and use as participants in the project. In as many cases as possible, plans already in existence in the schools were selected for study; in no case was a school encouraged to use a plan that was unacceptable to the personnel of the school or to the school district staff.

Responsibility for the selection, development, and organization of plans was shared by the project staff, staff members of offices of county superintendents of schools of the counties in which the participating school districts were located, and personnel of the participating districts. However, in several instances persons other than those employed in the public schools assisted in the development of programs. Staff members at the University of California, Los Angeles, met with the project co-ordinator and Los Angeles public schools personnel to plan the acceleration program for the twelfth grade after the state and city plans had been established. Members of the American Association of University Women in Modesto assisted the project research consultant with the development of the Community Sponsor plan. Other groups contributed in many ways after the schools began the program.

The programs shown in Table 2 were evaluated within the study. Certain of these programs were being used in school districts prior to the study; others were extensions of such programs; still others were new programs developed for use in the study. The following programs were among the new ones developed through state-district contacts and planning: all programs for the primary grades; interest groups, fifth and six grades; community-sponsor, eighth grade; and acceleration to Modesto Junior College and the University of California, Los Angeles. Plans for Saturday classes and other plans were greatly extended as part of the study. (See pages 28 and 29.)

All of the plans evaluated had been used by schools in some part of the nation and might have been developed within the districts independently. However, when the study was conducted, extended planning and experimentation resulted in the expansion and improvement of the programs offered in the three participating county areas.

In all of the programs described, teachers were actively involved in curriculum planning and development. The project curriculum consultants maintained close contact with the participating teachers through regularly scheduled in-service meetings and through classroom visits. Every attempt was made to approach curriculum development on a co-operative basis.

ENRICHMENT IN THE REGULAR CLASSROOM

The first general area of programs studied was that of enrichment in the regular classroom. Programs in this area were established at first grade and fifth and sixth grade levels. In this type of program, children chosen for the study remained with the regular classroom teacher during the entire school day. The factor in the study that differentiated this program for the gifted child from the usual classroom program was the availability of a consultant, who worked constantly with the teacher individually and in group sessions to plan and provide curriculum experiences for the identified gifted child that were commensurate with his ability and interest. On request from the teachers and through co-operative planning, the consultants supplied books and other materials which were used to expand and broaden the child's learning experiences.

ACCELERATION

In this study two approaches to acceleration were used. In one, gifted pupils were moved into advanced placement through administrative arrangement; in the other, they were accelerated through a condensation of time in covering the regular curriculum.

Acceleration—First Grade

In the first grade acceleration plans, the children in one gifted group were accelerated one-half year after careful individual study. They were placed individually or in small groups with children who were one-half year older. The teachers carried on an individualized developmental program for them.

The children in another gifted group were placed in first grade classrooms in which they were given an individualized ungraded curriculum experience.[1] The intent of this plan was that these children, who were placed in the program on the basis of high ability and general maturity, would be placed in the third grade after the experimental year.

Acceleration—Junior High School

In the junior high school acceleration plan, a group of gifted ninth grade students of eighth grade chronological age were studied. These students had started an acceleration program at sixth grade level through

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[1] The original intention of this plan was to place the children in a combined first and second grade class. This plan was changed later by the local administration to first grade only.

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TABLE 2

Experimental and Control Groups that Participated in the State Study, According to Type of Program, Grade Level, Number of Participants, and County in Which the Program Was Offered

County	Type of program											
	Special grouping				Planned acceleration				Enrichment in the regular classroom			
	Secondary	Number of pupils	Elementary	Number of pupils	Secondary	Number of pupils	Elementary	Number of pupils	Secondary	Number of pupils	Elementary	Number of pupils
San Diego	Control, eighth grade (junior h.s.)	32	Cluster, first grade	28	Accelerated, ninth grade	25	Ungraded, first grade	20			Enrichment, first grade	56
	Honors, twelfth grade	38	Special interest, fifth and sixth grades	25			Control, first grade	43			Control, first grade	43
Los Angeles	Special class, eighth grade (junior h.s.)	66	Cluster, second grade	28	Control, eleventh grade	36	Control, fifth and sixth grades	58			Enrichment, fifth and sixth grades	50
	Control, eighth grade (junior h.s.)	25	Cluster, fifth and sixth grades	59	Accelerated, to University, twelfth grade	17	Acceleration, first grade	23				
	Special class, eleventh grade	68	Special class, fifth and sixth grades	33	Control, twelfth grade	28						
			Special interest, fifth and sixth grades	10								

Stanislaus	Community sponsor, eighth grade (junior h.s.)	24	Saturday class, fifth and sixth grades	34	Accelerated to junior college, twelfth grade	28					Enrichment, fifth and sixth grades	26
	Independent study, eleventh grade	32			Control (Sacramento)	17						

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summer courses. From 1956 to 1958 these individuals had taken a planned sequence of courses each summer containing all of the curriculum content to qualify fully as ninth grade students.

Acceleration—Twelfth Grade

In the twelfth grade acceleration plan, twelfth grade gifted students from three high schools took courses on a junior college or university campus in addition to their usual high school work. Blocks of time were available in the morning and late afternoon during which the students enrolled in college courses of wide variety taught by carefully selected professors. Students were given complete library stack privileges and access to other campus facilities but were not permitted actual participation in student activities. The selection of courses was planned with the co-operation of both high school and college guidance personnel. While the students were on the college campus, they were treated as college students even though their basic affiliation was with the high school group.

SPECIAL GROUPINGS

Special groupings were involved in the following plans for gifted children.

Community Sponsor Plan

In the community sponsor plan, the eighth grade pupils in the gifted group were given planned contacts with an adult sponsor in a field of mutual subject interest. The interests formed a basis for study in many fields—for example, electronics, medicine, fine arts, and forestry. The sponsors were selected carefully for knowledge in a particular field and for skill in working with young people. They were matched with one or more eighth grade children in the gifted group who shared the sponsors' particular interests. Contacts between sponsors and pupils involved, among other things, meetings, letters, books, magazine articles, tape recordings, and ham radio. Approaches commonly used by the sponsors involved carrying out research projects; making, displaying, and discussing collections; and conducting experiments.

Each sponsor suggested, directed, and planned. The consultant staff and local district teachers helped with the acquisition of materials and supplemented the sponsor's activities. A set contact schedule was not maintained. During one month perhaps two to four letters were exchanged; during another month, a meeting, a tape recording, or a conversation by ham radio may have been the means of communication. The interaction proceeded as the needs and desires of the sponsor and student dictated.

Saturday Class Plan

In the Saturday class plan, gifted children were brought together at the headquarters of the county superintendent of schools for three hours each Saturday to explore fields of their special interests under the guidance and direction of carefully selected instructional personnel. Small groups worked in the areas of art, creative writing and literature, physical sciences, mathematics, Spanish, and German. Each child had class sessions in the two subject fields of his choice for approximately 24 Saturdays. The interests, backgrounds, and aptitudes of the children determined to a large extent the curriculum.

Each Saturday class teacher planned and prepared materials to provide the children in his group with enriched learning in the fields in which they were especially interested. The regular classroom teachers permitted the gifted pupils to use free time for research and encouraged them to share experiences on appropriate occasions. In this way, continuity of learning was provided for the children.

Honors Classes

Honors courses within the study were offered in the twelfth grade and were limited to students who were high achievers in particular subjects. The selection for these classes was based upon grades earned by the students in the tenth and eleventh grades and upon achievement tests in each area. This practice resulted in the formation of honors groups, which, according to the study criterion, included both gifted and nongifted children. The offerings within the courses exceeded the usual high school offerings in depth. The content included material which normally would be offered during the two semesters of the senior year plus that of a semester college course.

Students in the State Study were involved in both mathematics and physics. The mathematics courses included trigonometry, solid geometry, college algebra, and introductory units in analytic geometry, calculus, and statistics. Textbooks used in the physics course were those found in college courses. The study of mechanics, heat, sound, light, electricity and magnetism, and modern physics was accompanied by suitable laboratory experiments.

Part-time Interest Groups

The part-time interest group plan was an educational program in which children in the fifth and sixth grades spent most of the week with their own grade group and one afternoon a week in a special class. During this afternoon they were given the opportunity to explore fields of their special interests under the guidance and direction of a specially qualified teacher. The interests, backgrounds, and aptitudes of the children determined to a large degree the curriculum. Subject matter was utilized in such a way as to permit the student to make generalizations, to relate facts to concepts, and to experiment with scientific thought and method.

Cluster Grouping

Cluster grouping as part of the study was an administrative plan wherein children were kept with their normal age-grade groups in lieu of being placed in special classes or accelerated programs. It was a plan essentially like enrichment in the regular classroom except that the school administration deliberately arranged to place a certain number, from three or four to no more than ten, in one classroom. Cluster groupings were established at first, second, fifth, and sixth grade levels.

As in the enrichment plan, the teacher and the curriculum consultant planned for the gifted learners activities that were appropriate for their interests and abilities. These activities were developed within the curriculum of the regular group, with special attention given to providing for the children in the study group learning opportunities that caused the children to extend themselves in order that they would profit fully from the experiences. The children were also encouraged to work independently in activities of their choice.

Special Classes—Elementary Level

Within the State Study, a group of gifted fifth and sixth grade pupils worked together on a full-time basis. As in other plans, the project curriculum consultant and district consultants worked with the classroom teacher to provide the children with suitable learning materials and experiences.

Special Classes—Junior and Senior High School Levels

At the junior and senior high school levels, special classes of gifted students were organized in various subjects. The junior high school students were grouped for English, social studies, and mathematics; the high school students were grouped for English, history, algebra 3, and trigonometry.

Independent Study Plan

The independent study plan was one that utilized a two-period time sequence to provide flexibility in teacher-pupil interaction and learning. The State Study students participating in this plan were in the eleventh grade. The two basic subjects, English and social studies, formed the core of the independent study program with two consecutive classroom hours allotted in the schedule for the classes, and two teachers were assigned to the program for both periods. The teachers operated as a gifted pupil faculty and served as counselors and tutors within the program. Schedules were so organized that pupils had time to take additional courses, do independent research, and read material of their choice.

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Chapter 7

IDENTIFICATION OF PUPILS

All of the pupils included in the State Study were selected through the use of multiple measures. For older pupils, cumulative record data, including group test results and teacher evaluations, formed the basis for preliminary screening. For younger pupils, group tests and teacher identification forms (see Appendixes A, B, and C) were used to identify pupils for individual testing.

BASIC CRITERION

Within the study, all of the pupils were included on the basic criterion of a minimum IQ of 130 on the *Revised Stanford-Binet Scale, Form L.*[1] The pupils selected represented that segment of the school population contained within the upper 2 to 3 per cent of general intellectual ability. They were pupils whose ability deviated sufficiently from the average that special educational efforts were needed to meet their learning needs. In measured general intelligence, they differed as much from the average as do the mentally retarded. In studies of intelligence levels within the general population, the mentally retarded and intellectually gifted groups have been found to include approximately an equal per cent of the total.[2]

It is important to think of the gifted group as including a range of potential. Table 3 shows the number of pupils within the population as a whole who are in various IQ brackets within the classification of intellectually gifted.[3] (See page 34.)

MEANING OF TEST SCORE

The individual intelligence test is used to give trained examiners, under carefully standardized conditions, a reliable assessment of the subject's responses to items important in school learning and performance. The items are based upon speed of response, facility in solving puzzles, memory, verbal skill, comprehension, ability to discern similarities and differences, and the like. The intelligence quotient (IQ) derived is an index of how well the pupil has performed in relation to others of his age. A pupil's performance on an individual intelligence test is used to determine his mental age. His mental age is then divided by his chronological age to determine his IQ. For example, a pupil whose mental age is 13 years and whose chronological age is 10 years has an IQ of 130; one whose mental age is 15 years and whose chronological age is 10 years has an IQ of 150. It may be said, in a sense, that these two pupils and others like them wil perform at accelerated rates throughout their school careers by comparison with the average performance rate of pupils.

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[1] Lewis M. Terman and Maud A. Merrill, *Revised Stanford-Binet Scale, Form L*, 1937. New York: Houghton Mifflin Co.

[2] George C. Thompson, *Child Psychology*. New York: Houghton Mifflin Co., 1952, p. 387.

[3] Harold D. Carter, "Cut-off Points for Securing Groups of Pupils at Various Levels of Superiority as indicated by 1937 Stanford-Binet IQ's." (mimeographed).

TABLE 3

Number of Pupils from the General Population at Various IQ Levels

Number of pupils	IQ level
3 per 100	130
1 per 100	137
1 per 1,000	150
1 per 10,000	160
1 per 100,000	168
1 per 1,000,000	180

As shown in Table 4, a six-year-old child beginning the first grade whose IQ is 130 has a mental age which is equivalent to that of the average child who is completing the second grade; and when he is ten years old and beginning the fifth grade, he will have the mental age of the average child who is beginning eighth grade. The higher the IQ, the wider the gap between the child's performance and that of the average. The six-year-old with an IQ of 150 has the mental age equivalent of a beginning fourth grade pupil. At the age of ten at the beginning of the fifth grade, he has the mental age equivalent of a

TABLE 4

Mental Age Equivalents of Various Chronological Ages and IQ Levels

Actual chronological age	Corresponding grade	Mental age at 130 IQ level	Corresponding grade	Mental age at 150 IQ level	Corresponding grade	Mental age at 170 IQ level	Corresponding grade
6	1	7.8	2	9.0	4	10.2	5
8	3	10.4	5	12.0	7	13.6	8
10	5	13.0	9	15.0	10	17.0	12
12	7	15.6	10	18.0	13	20.4	*
14	9	18.2	13	21.0	*	23.8	*
16	11	20.8	*	24.0	*	27.2	*

* Beyond normal school range.

high school sophomore. For many obvious reasons, the needs of children with high IQ's cannot be met through acceleration alone.

The data in Table 4 are theoretical and are set up merely as a hypothetical means to demonstrate the learning rate of the study population as measured by individual intelligence tests.

USE OF THE INDIVIDUAL TEST

The *Revised Stanford-Binet Scale, Form L,*[4] an individual examination, was used in the State Study to determine the mental ability of the pupil. It was selected as the test that would give the best available estimate of the pupil's ability to learn in school.

The most important single reason for choosing the *Stanford-Binet Scale* is the problem of test ceiling. The *Wechsler Intelligence Scale for Children*[5] is probably the most widely used individual test other than the Binet, but it yields an IQ of 154 or less. This means that, for the intellectually gifted population, a "true" measure would be possible only within the limitations of an IQ range of 130-154, or 24 points. It means also that the potential of those with the highest ability in the gifted group would not be measured. And these are the ones who most need special provisions!

The individual test is planned to be administered by an examiner with special training. The test, as indicated earlier, is comprehensive in scope, and gives the pupil opportunity to respond to a variety of items. The person-to-person relationship (1) provides a situation in which personal instructions ensure understanding; (2) gives opportunity for the establishment of rapport and proper attitudes; and (3) permits the examiner to learn a great deal about the kinds of skills and abilities the pupil displays under carefully standardized test conditions.

Through the use of an individual test, the ability of the gifted pupil is measured more directly and effectively than is possible with a group test. The group test is built upon items designed for the entire population and therefore contains a number of items that serve no function in measuring the ability of the gifted pupil. On the other hand, the individual test is designed to permit the examiner to estimate the level at which he should begin testing. As a result, the pupil's energy is conserved, he does not become frustrated, and his interest and motivation are reasonably ensured.

PROBLEMS IN GROUP TESTING

An added reason for the use of the individual test as the identification criterion involves the problem of group test ceiling. Group tests do not give measures comparable to those of individual tests when

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[4] *Revised Stanford-Binet Scale, Form L., op. cit.*

[5] David Wechsler, *Wechsler Intelligence Scale for Children.* Ages 5-15; 1949. New York: Psychological Corporation (304 East 45th Street).

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extremes at either end of the ability scale are considered. Evidence to this effect was found in the present study. Within the population, group test scores for the same test were available for 332 gifted pupils. This group test is extensively used throughout the state.

If a criterion score of 125 or above on a group test (a score that is commonly designated for screening) had been used for selecting the gifted pupils, 82 of the 332 pupils in the present study would have been eliminated. This would have been nearly one-fourth of the group. If the criterion score of 130 (the same as that for the individual test) had been applied, 51.5 per cent of the gifted group would have been eliminated. Obviously, the group test would penalize a large segment of the population that is sufficiently advanced to deserve special provisions.

Table 5 shows that 171, or over half, of the gifted population failed to make the minimum score of 130 on a group test.

The problem of differences between group tests and individual tests within the higher intelligence levels was subjected to study by a test

TABLE 5

Scores Made by 332 Gifted Pupils on a Selected Group Test

IQ score	Grades 4-5	Grade 7	Grades 10-11	Total	Nearest per cent
140+	13	11	11	35	10
138–139	3	6	6	15	4
136–137	5	5	9	19	6
134–135	8	9	10	27	8
132–133	9	12	15	36	11
130–131	9	12	8	29	9
128–129	8	10	12	30	9
126–127	5	14	22	41	12
125	1	10	7	18	5
124	4	7	6	17	5
122–123	5	8	8	21	6
120–121	1	6	6	13	4
118–119	1	1	3	5	2
116–117	2	3	3	8	2
114–115	1	2	4	7	2
112–113		1	3	4	1
110–111			2	2	1
108–109			2	2	1
106–107	1			1	
104–105		1		1	
102–103					
100–101		1		1	
Total	76	119	137	332	—
Total pupil loss (125+)	15	30	37	82	
Per cent of pupil loss	19.7	25.2	27.0	24.7	

publisher.[6] It was found that at the upper Binet levels, the group test scores were lower. Test scores within the average range were comparable; below the average range the group test scores were higher. The group test, therefore, gave the gifted lower test scores, with algebraic differences of 33 points at the upper ranges. The discrepancy in the group test score for the gifted group actually would have made a difference in the kinds of curriculum experiences which were planned for these pupils.

Table 6 shows the algebraic differences between group and individual test scores for those pupils with IQ's above 130. In the comparison of the group and individual test scores, the individual test score is consistently higher. The algebraic difference increases with ability levels.

TABLE 6

Differences in Test Scores Between Group and Individual Tests at Various IQ Levels

IQ range	Number of pupils	Algebraic difference[1]
160–169	6	33.833
150–159	11	18.273
140–149	11	13.909
130–139	28	10.607

[1] In favor of Binet.

The problem of using group tests except for screening purposes was stressed by Pegnato[7] in a study of the entire population of a large metropolitan junior high school. If a cutoff point of 125 on the *Otis Group Test*[8] had been employed, over half of the gifted in his study would have failed to qualify, including nine whose actual scores on the Binet ranged from 146 to 161. Table 7 shows that only 35 out of the sample of 84 gifted pupils made scores on the group test of 125 or more.

An examination of the scores of the 84 individuals reveals interesting discrepancies. Out of the 84 in the group, 45 had Binet scores that were higher than their Otis scores by 20 points or more. Of these, 15 lost at least 30 points on the group test score.

If the test score should give some measure of the individual's potential, one can readily see differences in the implications for educational planning between a group test score of 134 and an individual test score of 178, or a group test score of 134 and an individual test score of 149, to cite two examples from this study. The planning on the individual test score basis would be quite different from planning based upon group test scores.

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[6] Data provided by the California Test Bureau. The study is reported in the *Journal of Educational Psychology*, XLV (December, 1954), 499-504.

[7] Carl V. Pegnato, "An Evaluation of Various Initial Methods of Selecting Intellectually Gifted Children at the Junior High School Level." Unpublished Doctor of Education dissertation, Pennsylvania State University, June, 1955, pp. 83-85.

[8] Arthur S. Otis. *Otis Quick-scoring Mental Ability Tests*. Grades 1.5-4; 4-9; 9-16; 1936-54. Yonkers, New York: World Book Co.

TABLE 7

Comparison of Scores Made on a Group Intelligence Test and Those Made by the Same Pupils on an Individual Intelligence Test

Otis group test IQ	Individual test Binet IQ 130-145	 146-161	Total
125 or above	19 pupils	16 pupils	35
124 or below	40 pupils	9 pupils	49
Total	59	25	84

The problem of applying a group test score criterion to a selected segment of the population is seen in an examination of the manuals for the tests used most extensively in one of the three counties in the State Study.

Test A required that a child in the second grade succeed on 77 per cent of the items in order to attain an IQ of 125, and that one in the third grade succeed on 84 per cent for the same IQ. The third grade child would have to succeed on 138 out of 164 items. At the next level, the per cent of success requried is 63 per cent for grade four, 72 per cent for grade five, 81 per cent for grade six, 89 per cent for grade seven, and 94 per cent for grade eight. Thus it is evident that the total number of items available for the measurement of pupil potential is low and decreases at each succeeding grade level.

Test B is designed for grades 7-12. One form of this test does not yield an IQ of 125 or more beyond the ninth grade level. The other form of the test requires success on 96 per cent of the items in order to attain a score of 125. Therefore, although this test is used extensively in the high schools, it does not measure the potential of the gifted pupil.

Test C is a primary level test. To attain a score of 125 on this test, the kindergarten child would have to succeed on 76 per cent of the items, and the first grade child on 90 per cent. The second grade child could not make a score of 125, although the test is designed to include this age level.

The advanced level of Test C shows the same pattern. This test, for ages seven to eleven, would not measure a child in the sixth grade who had an IQ of 125 or more.

IMPLICATIONS

The implications regarding the use of tests for the identification of gifted pupils are clear. It is important to choose tests that will show the true potential of the pupils. Therefore, tests with adequate content of appropriate difficulty should be employed. If group tests are used for screening purposes, they should be *for a more advanced grade level* than that of the gifted children tested.

The first step leading toward special curriculum provisions for the intellectually gifted is *screening*, which involves the use of carefully selected group intelligence tests to screen out the individuals who are likely to be thus gifted. A cutoff point that will ensure the best use of the test should be selected. The one chosen will depend upon the test administered. Other approaches, such as evaluation of achievement and observation by trained personnel, should be employed in conjunction with the group intelligence tests.

The second step, *identification*, is to measure the actual potential of the children who are selected in the screening process by having them perform a standardized variety of tasks. These complex tasks are administered by an individual who is a trained specialist and under conditions that permit assessment of the level and quality of each pupil's ability to learn.

The third step, *program planning*, must be based upon thorough knowledge of the pupils—their abilities, achievement levels, and personal characteristics. Since the programs planned for the pupils should include whatever provisions seem best for each individual, it is obvious that the pupils must be identified before the program is planned. In order to make the best plans for each pupil, it is necessary to explore a variety of approaches and to select the ones that appear to be most satisfactory. Many districts may find it necessary to operate several programs.

An appropriate educational program should be provided for every intellectually gifted pupil who is identified regardless of the individual's problems. A "program" that includes only some of the identified gifted and excludes others is only a partial service. The intellectually gifted child who is not given the special opportunities he needs because he is poorly motivated, physically handicapped, or withdrawn may be the individual who could profit most from proper attention. Indeed, this has been the actual case in the present study. Several pupils with long histories of undesirable behavior made remarkable adjustments during the course of the experimental year because they were involved with meaningful learning experiences. The individuals with special problems will require special and skilled help. This help should be given.

AGE OF IDENTIFICATION

One of the problems frequently discussed in relation to identification is the age at which the identification should be made. Within the present study, the assumption was made that the educational needs of the intellectually gifted do not exist only at certain grade levels, but that they exist at all grade levels. This assumption is supported by the statement of Hollingworth, an outstanding authority on the gifted, who pointed out that gifted children in the primary grades need special educational provisions even more than those in any grade above this level. She maintained that the time of greatest need is in the early grades because the children at that stage have not developed skills for meeting their needs independently.[9]

To select gifted pupils at the kindergarten level for individual testing, a multiple screening process was used in the State Study. The screening included the use of teacher judgment, a teacher identification form (see Appendix A), the *Pintner-Cunningham Intelligence Test*,[10] and the *Goodenough Draw-a-Man Test*.[11]

A study was made of the effectiveness of the screening procedure in one of the participating districts.[12] The total kindergarten enrollment in this district for 1957-58 was 1,084 pupils. On the basis of the multiple screening criteria, 127 of these pupils were referred for individual testing with the *Stanford Binet Scale*. Of the 127, the individual test revealed 62 who had IQ's of 130 or more. This was almost half of the total number referred—an indication that the screening process was effective. Since the 62 children were identified at kindergarten level, the educational planning for them throughout school should be more appropriate than it might be if they were not identified.

IDENTIFICATION IS NOT AN END IN ITSELF

Consideration should be given to the effect that identification of the gifted has on school achievement. Questions have been raised from time to time regarding whether identification of the gifted alerts teachers and parents to children's educational needs and thus results in proper educational provisions being made for the children.

The effect of identification was tested by Jacobs[13] in an experiment involving 100 mentally superior pupils in the fourth, fifth, and sixth grades. The pupils were divided evenly into experimental and control groups, with the groups matched in reading and arithmetic achievement and social class.

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[9] Leta Hollingworth, *Children Above 180 IQ*. New York: World Book Co., 1942, p. 282.

[10] Rudolph Pintner, Bess V. Cunningham, and Walter N. Durst. *Pintner-Cunningham Primary Mental Test*. Grades K-2; 1923-46. Yonkers, New York: World Book Co.

[11] Florence L. Goodenough, *Goodenough Intelligence Test* (also called *Draw-a-Man*). Grades K-3; 1926. Yonkers, New York: World Book Co.

[12] This study was made by Margery P. McIntosh, Director of Guidance, La Mesa-Spring Valley Elementary School District, San Diego County.

[13] Norman Jacobs, "Formal Recognition of Mentally Superior Children: Its Effect on Achievement and Achievement Motivation." Unpublished Doctor of Philosophy dissertation, Stanford University, January, 1959.

Following the identification and matching of the experimental and control groups, the parents and teachers of the pupils in the experimental group were involved in conferences. The theory was that the conferences would change the psychological environment of the pupils so that their motivation to achieve and their academic achievement would increase. Neither group was involved in a special program of any kind. Therefore, the identification of the pupils to their teachers and parents was the only variable tested.

Results of tests administered at the end of the experiment showed no significant differences between the groups. The control group slightly exceeded the experimental group in arithmetic achievement.

It is evident, then, that the identification process in itself does not eliminate the need for continuous curriculum planning in which special provisions are made to meet the needs of the intellectually gifted. It cannot be assumed that educational improvement will ocur on the basis of knowledge that a pupil has high ability. Identification must be followed by making the educational provisions needed by the individual.

SUMMARY

The problem of identification is one that must be solved by using the best available measures to arrive at an accurate assessment of pupil potential. In the screening process, which should be regarded as preliminary to identification, multiple measures, including group intelligence and achievement tests, teacher judgment, teacher check lists, and other means must be used. The final assessment of potential should be made with a measure that permits the pupil to perform at his true level; ceiling limitations must be avoided. In this manner a proper basis for adequate curriculum planning is ensured.

Identification should begin at the kindergarten and should be a continuous process extending through the grades. The process should be aimed toward the identification of all intellectually gifted pupils, regardless of the children's special problems.

Chapter 8

EVALUATION OF PUPIL ACHIEVEMENT

A principal area of interest in the evaluation of pupil growth is that of achievement. The main concern of the school is in the academic learning of the pupil. If a program is worth while, it should contribute to the academic growth of the pupil as well as to his adjustment. If one is achieved without the other, then the value of the program may well be questioned. This chapter is devoted to the academic achievement of the pupils in the State Study. It presents statistical data for the primary grades and information regarding each type of plan from the fifth grade through the twelfth.

PRIMARY GRADES

One of the problems in measuring academic achievement at the early primary grade level is created by the scarcity of instruments. Tests are limited in the amount and kind of material they contain, especially when they are to be used for evaluating the achievement of gifted pupils. Therefore, to evaluate adequately the work of gifted pupils in the first and second grades, the staff used the Gates reading tests, primary and advanced,[1] and two staff-devised instruments, the "Pupil Evaluation—Primary Form" and the "Formal Arithmetic Processes Test." (See Appendixes B and C.)

Gates Reading Tests—Primary and Advanced

The Gates reading tests measure the pupil's ability to recognize words and to read sentences and paragraphs with full understanding of their meaning. The tests were used in the study to provide an objective measure of one important learning skill.

Word Recognition Test

The "Word Recognition" section in each of the Gates tests is designed to measure the pupil's ability to read words that are representative of vocabulary in the primary grades. When this section was given at the end of the kindergarten year, the pupils in the experimental group made a mean score of 1.73; the pupils in the control group, a mean score of 1.76. By the time they had completed kindergarten, half of the pupils were beyond the midpoint for first grade in achievement, and one-fourth of the total group were at second-grade level and beyond, as shown by the median scores in Table 8.

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[1] Arthur I. Gates, *Gates Primary Reading Tests*, Grades 1-2.5, and *Gates Advanced Primary Reading Tests*, Grades 2.5-3, 1926-58. New York: Bureau of Publications, Teachers College, Columbia University.

TABLE 8

Grade Equivalent Scores of First and Second Grade Groups in the State Study on the Word Recognition Section of the Gates Primary and Advanced Primary Reading Results

Group	Time of testing	Number of pupils	Mean $\bar{X}$	Standard deviation S_x	Median Q_2	Lower quartile Q_1	Upper quartile Q_3
Experimental, first grade	1958	132	1.73	.54	1.53	1.29	2.01
	1959	132	3.52	.96	3.30	2.92	3.82
Control, first grade	1958	43	1.76	.58	1.54	1.31	2.06
	1959	43	2.81	.76	2.60	2.31	3.10
Experimental, second grade	1958	62	2.68	.81	2.56	2.07	3.06
	1959	62	4.25	1.01	4.20	3.47	5.04

Table 9 shows that the pupils in the first grade experimental and control groups were closely comparable in first performance on the word recognition section of the Gates reading test.

TABLE 9

Mean and Standard Deviation of Scores for First Performance on the Word Recognition Test by First Grade Groups in the State Study

Group	Number of pupils	Mean	Standard deviation
Experimental, first grade	132	1.73	.54
Control, first grade	43	1.76	.58
Total	175		
t = .7 (nonsignificant)			

When the same groups were tested at the end of the experimental program, the picture of similarity changed. After one year's time in the experimental program, a highly significant difference in favor of the gifted children in the experimental group was noted and is shown in Table 10. There is less than one chance in a hundred chances that the difference would be due to chance.

While the gifted pupil in the experimental group had a median chronological age of six years and one month at the end of kinder-

TABLE 10

Mean and Standard Deviation for Final Performance on the Word Recognition Test Administered to First Grade Groups in the State Study

Group	Number of pupils	Mean	Standard deviation
Experimental, first grade	132	3.52	.96
Control, first grade	43	2.81	.76
Total	175		
t = 5.07 p<.01			

garten, he performed as well on the word recognition test as the average child of six years and eight months.[2] This was also true of the gifted child in the control group. At the end of the experimental year, the experimental group had gained 1.7 grades in reading, the control group one grade. Even though the gain for the control group is considerably less than that for the experimental group, the control group was still a year beyond the average. It is evident, therefore, that while the total gifted group was advanced in reading as measured by this phase of the Gates test, the pupils in the experimental group advanced far beyond those in the control group.

Further effect of the experimental year on the performance of the pupils may be seen by the use of the accomplishment quotient.[3] This is a figure derived from the ratio between the educational level of performance of the child on the test and his mental age. It represents actually the per cent of use of potential or ability as measured by tests. A child who achieves as an average ten-year-old and has the mental age of a ten-year-old has an accomplishment quotient of 100. The accomplishment quotient is useful for measuring the level of group performance, but its use for individuals is questionable.[4]

Evidence has shown that higher accomplishment quotients are more frequently obtained by intellectually inferior pupils than by the intellectually superior. This is probably due to the need for greater effort on the part of the slow learner and therefore proportionately higher achievement in relation to his mental age. One effect of a program for the gifted, then, should be a heightening of the accomplishment quotient.

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[2] *Manual of Directions, Gates Primary Reading Test.* New York: Bureau of Publications, Teachers College, Columbia University, 1943, p. 4.

[3] Harry A. Greene, Albert N. Jorgensen, and Raymond D. Gerberich, *Measurement and Evaluation in the Secondary School.* New York: Longmans, Green & Co., 1943, p. 240.

[4] *Ibid.*, p. 241.

Table 11 shows the gains in accomplishment quotient made by the first and second grade pupils in the experimental group. The first grade pupils in the experimental group, who tested well above grade level on the first test, nevertheless had an initial accomplishment quotient of 79 when their ability was taken into account. The quotient rose to 90 at the end of the experimental year which means that these children were working at a level near to their potential. The pupils in the control group, on the other hand, maintained almost identical accomplishment quotients for both testing periods. The second grade pupils in the experimental group also showed a gain during the year, with a rise of 7 points in the accomplishment quotient.

TABLE 11

Median Accomplishment Quotients of First Grade and Second Grade Groups on Word Recognition Test

Group	Number of pupils	First testing	Second testing
Experimental, first grade	132	79	90
Control, first grade	43	82	83
Experimental, second grade	62	87	94
Total	237		

The second grade pupils, who had no control group, rose from an initial mean grade equivalent of 2.68 to a score of 4.25 at the end of the experimental year. If this rate of gain had continued, it would have meant that this group, by the beginning of the third grade, would have been reading as well as the average pupil in the fifth grade.

Paragraph Reading Test

The "Paragraph Reading" section of the Gates test differs from the "Word Recognition" section in that the former measures the reading of passages to find answers to questions. The gains apparent on the Word Recognition Test were found to be the same as those on the Paragraph Reading Test. Table 12 shows a median gain of two full years for the first grade pupils in the experimental group and a median gain of 2.1 years for the second grade pupils in the experimental group. The first grade pupils in the control group gained approximately one year. The children participating in the experimental programs, therefore, made twice the gain that was made by the gifted children in the control group.

Table 13 shows that no significant difference existed between the gifted pupils in the experimental group and those in the control group on the first Paragraph Reading Test.

TABLE 12

Grade Equivalent Scores of First and Second Grade Groups on the Paragraph Reading Section of the Gates Primary and Advanced Primary Reading Tests

Group	Time of testing	Number of pupils	Mean $\bar{X}$	Standard deviation S_x	Median Q_2	Lower quartile Q_1	Upper quartile Q_3
Experimental, first grade	1958	132	1.64	.43	1.52	1.39	1.71
	1959	132	4.01	1.75	3.52	2.72	4.54
Control, first grade	1958	43	1.72	.51	1.50	1.40	1.82
	1959	43	2.69	1.05	2.43	2.00	3.01
Experimental, second grade	1958	62	2.50	.83	2.23	1.92	2.78
	1959	62	4.73	1.33	4.44	3.92	5.42

TABLE 13

Mean and Standard Deviation for First Paragraph Reading Test Administered to Experimental and Control Groups in the State Study

Group	Number of pupils	Mean	Standard deviation
Experimental, first grade	132	1.64	.53
Control, first grade	43	1.72	.51
Total	175		
t = .89 (nonsignificant)			

The final testing on paragraph reading revealed a highly significant difference in favor of those in the experimental group. Table 14 shows that instead of a mean score slightly less than that made by the control group, the gifted in the experimental group had a mean score that was 1.32 grades beyond that of the control group. The gain in mean score for the pupils in the experimental group during the year was 2.37 grades. There was less than one chance in a hundred that the difference between those in the experimental group and those in the control group was due to chance.

The effect of the programs on accomplishment quotients was calculated and is shown in Table 15. It can be seen that the gains were even more striking for this test than they were for the word recognition section. When one considers that the median IQ of the first grade pupils in the experimental was 138, it is apparent that the high final accomplishment quotient means a high level of achievement, well beyond grade level. The accomplishment of the second grade pupils is additional evidence of the effectiveness of the experimental program. It should be noted that the accomplishment quotient of the control group remained stationary.

TABLE 14

Mean and Standard Deviation for Final Paragraph Reading Test Administered to Experimental and Control Groups in the State Study

Group	Number of pupils	Mean	Standard deviation
Experimental, first grade	132	4.01	1.75
Control, first grade	43	2.69	1.05
Total	175		
$t=6.00$ $p<.01$			

TABLE 15

Median Accomplishment Quotients for Paragraph Reading Test on First and Second Testing of Groups

Group	Number of pupils	First testing	Second testing
Experimental, first grade	132	79	93
Control, first grade	43	82	81
Experimental, second grade	62	82	95

The need for the continuation of programs for the gifted becomes apparent when one considers the effect of the experimental program on group spread in achievement. In the Word Recognition Test, the reading equivalent scores that separated the lower quarter from the upper quarter of the experimental group had a range of .72 of a grade. The experimental year resulted in the lower fourth differing from the upper fourth by .9 of a grade.

In the Paragraph Reading Test, the first grade range of the experimental group was .32 of a grade at the time of the first test. This range increased to 1.82, or nearly two full years between the lower fourth and the upper fourth of the gifted experimental group. The fact is that individualized programs tend to increase achievement differences by allowing pupils to work at a rate in keeping with their abilities. This means that teachers of these pupils in future grades would have an increasingly difficult task in providing for variability of achievement within the gifted group.

An additional example of the need for and importance of individualization is shown by the final scores of the experimental groups in the upper quartiles. All of the upper one-fourth of the first grade pupils in the experimental group ended the experimental year with scores that were at least the equivalent of the achievement of the middle fourth grade pupils in paragraph reading. The highest scores were at the achievement level of the eighth grade. All of the second grade pupils in the experimental group attained at least the middle of the fifth grade on this section of the test, with the highest scores also going as high as eighth grade level. It is clear that curriculum planning of these individuals cannot be approached through the usual group methods.

The effect of special planning is shown graphically in Figures 1 and 2. In these graphs, it can be seen that the gifted pupils in the control group, who had no special attention, gained at the same rate as that of the random population during the course of one year. The first and second grade pupils in the experimental group, on the other hand, made gains in keeping with their accelerated learning ability. The effect of having books and materials that enabled them to progress at their own rate was a marked acceleration in the rate of achievement.

Formal Arithmetic Processes Test

The "Formal Arithmetic Processes Test" (see Appendix B) was devised by the State Study staff in order to have an individually administered examination that would probe the primary pupil's ability to work with the formal aspects of numbers. It was devised for individual administration so that pupils would not be penalized by lack of ability to read.

The test consists of eight levels. Each level consists of four sections, with three problems to a section. The pupil must get two out of the three problems in a section correct in order to score one point. The pupil must be successful in two sections out of four within each of the levels before he is permitted to go on to the next level.

The content of the test was derived from the arithmetic textbooks adopted for use in California elementary schools. The formal processes introduced at each grade level are contained in the problems at each level of the test, so that the formal content of the first four grades, for example, is tested in part by the problems for the first four levels.

The examples used at each level of the test are examples of those which are introduced for the first time at the corresponding grade level in the text. The same types of problems may appear again repeatedly in subsequent texts, and, for this reason, the overlap of processes at the upper grade level is greater. Therefore, it is important to keep in mind that the principle governing the placement of problems within

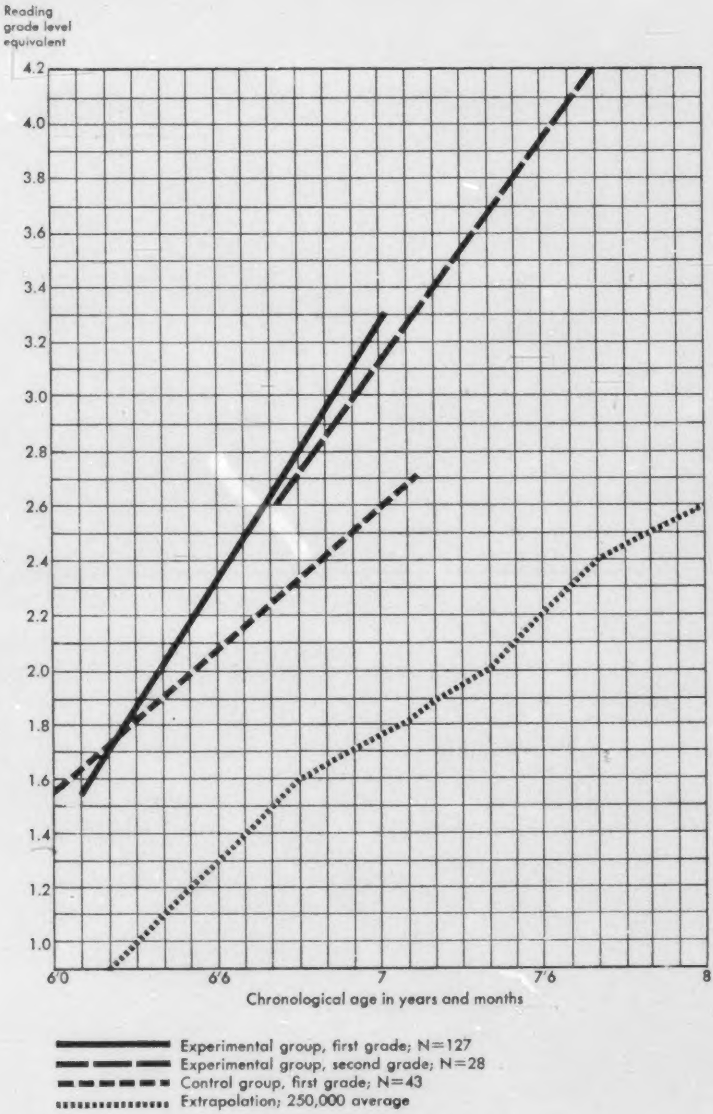

FIGURE 1. Expected and Observed Scores of Experimental Group, First Grade; Experimental Group, Second Grade; and Control Group, First Grade, on the Word Recognition Section of the Gates Reading Test

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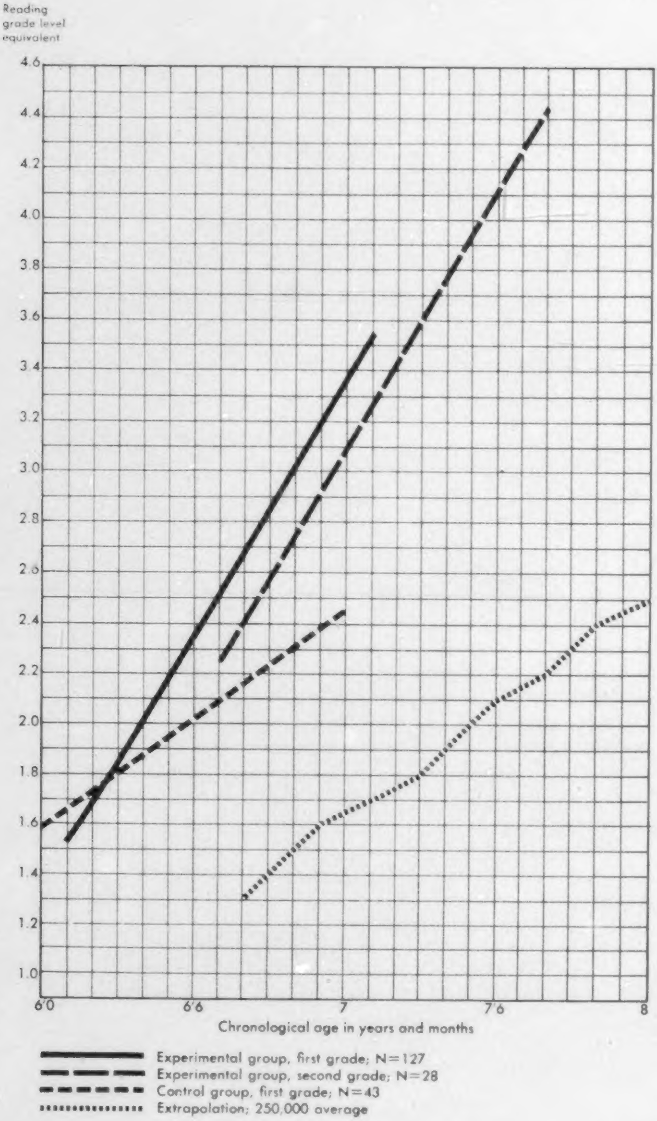

FIGURE 2. Expected and Observed Scores of Experimental Group, First Grade; Experimental Group; Second Grade; and Control Group, First Grade, on the Paragraph Reading Section of the Gates Reading Test

the "Formal Processes Arithmetic Test" is the grade level at which the *introduction* of the process is made. It is important also to remember that the test measures only understanding of the formal processes in arithmetic. No other types of content are measured.

The test was given to the first and second grade pupils in the experimental group in October, 1958, and again in May, 1959. It was given to the control groups and random groups only in May, 1959, to avoid identification of the gifted pupils in the control groups and possible subsequent teaching effects.

On the first testing, the gifted pupils in the experimental group, who were then in kindergarten, had a mean score of 8.5 and a median score of 8.4. This meant that by the time they had finished kindergarten, they had succeeded on items that were representative of those introduced in the first two grades.

The second testing gave them a mean score of 15.2, which is equivalent to success on most of the processes introduced within the first three grades. On the basis of formal arithmetic processes, first grade pupils in the experimental group were two years advanced over regular pupils.

The second grade pupils in the experimental group showed an average growth of approximately five points on the test during the experimental year. Their second testing revealed that they had mastered the processes within the textbooks for the first three grades, and on this basis were ready for fourth grade work.

The performance of the gifted pupils in the control group and that of random average first grade pupils were compared, with no statistical difference between the group ($t = .88$). When the first grade pupils in the experimental group were compared to the controls, highly significant differences were found in their performance ($t = 7.78$, $p < .01$). The fact that the gifted in the experimental group showed highly significant gains when compared to the gifted pupils in the control group points out that the gifted benefited greatly as a result of the program. This is true despite the fact that the teachers did not report significant changes in the pupil performance in arithmetic on the Pupil Evaluation-Primary Form (see Appendix C). The fact remains that the pupils did learn the processes somewhere—either at home or at school—during the year. Table 16 presents the results of the Formal Arithmetic Processes Test.

The data reported in the table make apparent the need for attention to individual differences in learning attainment. The upper quarter of gifted first grade pupils scored beyond the upper quarter of gifted second grade pupils. Both groups were considerably beyond the controls, who nevertheless were advanced a grade beyond expectancy. The first grade pupils selected at random, who would be expected to perform at grade level, likewise showed that they had mastered processes a year beyond their grade at the time of testing. According to the results of this test, the entire participating group was ready for mathematical processes beyond those offered at their grade level.

TABLE 16

Summary of Performance on Formal Arithmetic Processes Test for First and Second Grade Groups

Group	Time of testing	Number of pupils	Mean	Standard deviation	Median	Lower quartile	Upper quartile
Experimental, first grade	1958	134	8.5	3.1	8.4	4.6	10.5
	1959	134	15.2	4.0	14.6	12.6	19.9
Control, first grade	1958*						
	1959	42	11.0	2.3	11.6	10.1	13.3
Experimental, second grade	1958	64	12.5	2.6	12.3	10.7	14.0
	1959	64	17.3	4.9	16.2	13.6	19.5
Random, first grade	1958*						
	1959	26	10.2	4.1	10.2	6.2	13.3

* Test not given in 1958, see page 51 of this chapter.

Table 17 gives additional evidence of the high level of performance reached by many of the gifted pupils. It shows that 82.1 per cent of the first grade pupils in the 1959 testing scored lower than 19 points on the test. In other words, 17.9 per cent of the first grade pupils in the experimental group scored above 19 points, which would be the equivalent of fourth grade level. Further examination shows that 26.6 per cent of the gifted second grade pupils scored within the fourth grade level. Thus a large number of gifted pupils need special provisions in arithmetic if their learning is to progress.

Figure 3 portrays graphically the range of differences in the scores made by the various groups and shows the differences between groups.

Pupil Evaluation—Primary Form

The "Pupil Evaluation—Primary Form" (Appendix C) was developed for teachers' use in evaluating the growth that gifted pupils made in various subject fields. The form was designed so that pupils' performance that was far in advance of their actual grade level could be measured. The teachers used this form to rate their gifted pupils in November, 1958, and again in May, 1959. In this way, data that could be used to determine the growth made by pupils in the various programs were secured. These data were appraised statistically to determine

TABLE 17

Per Cent of Pupils in the Experimental, Control, and Random Groups Scoring Lower in Arithmetic Processes than Selected Scores

Selected score	Group tested					
	Experimental, first grade		Experimental, second grade		Control, first grade	Random first grade
	1958 (per cent of pupils)	1959 (per cent of pupils)	1958 (per cent of pupils)	1959 (per cent of pupils)	1959 (per cent of pupils)	1959 (per cent of pupils)
29		99				
27		97		94		
25		96		86		
23		94		81		
21		91	98	75		
19	99	82	97	73	98	
17	98	73	95	58	95	92
15	96	48	80	36	88	85
13	92	25	53	12	79	69
11	74	12	19	2	52	54
9	49	2	3		17	35
7	26		2			27
5	10					8
3	1					
1	1					
Mean	8.5	15.2	12.5	17.3	11.0	10.2
Standard deviation	3.1	4.0	2.6	4.9	2.3	4.1
Number of pupils	134	134	64	64	42	26

whether the growth that occurred was more significant than it would have been if the pupils had been only in regular programs. The results of this evaluation are shown in Table 18.

The pupils made the greatest growth in reading and language. However, significant growth was also made in art and social studies in two plans, and in arithmetic in one plan. No growth in music was made by pupils in any plan.

Since the children's gains in reading and language were significant in all the plans and since the gains they made in these two subject fields were more significant than those made in other subject fields, it might be assumed that teachers stressed reading and language to the extent that the gains in the other subject fields were less than they should have been. If this is a sound conclusion, it may therefore be assumed that consideration should have been given to equalizing teachers' efforts among the fields. The reverse of the situation found in the reading and language fields was particularly noticeable in the field of music; this might indicate that teachers failed to stress instruction in this field be-

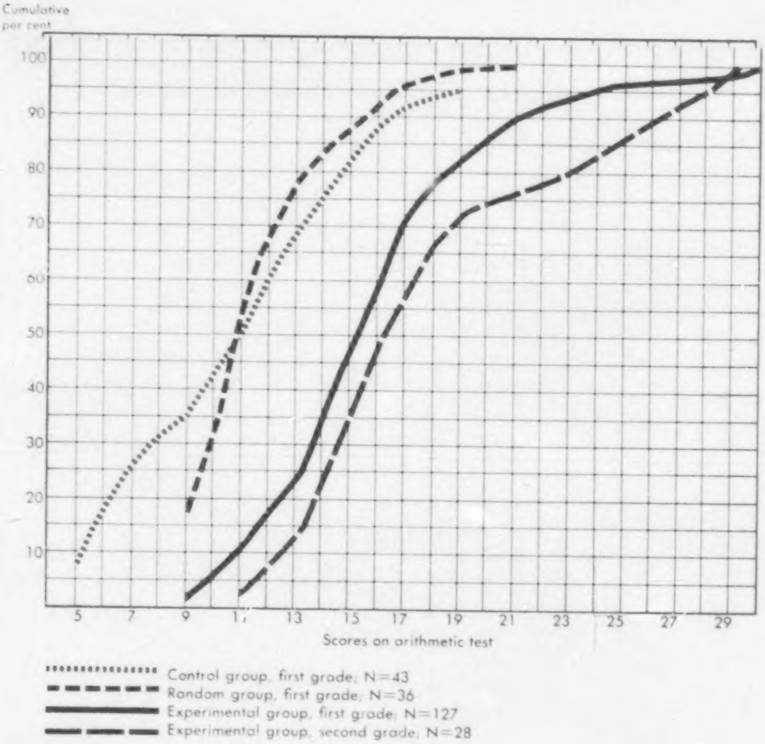

FIGURE 3. Range of Differences in Scores Made by Pupils in Control Group, First Grade; Random Group, First Grade; Experimental Group, First Grade; and Experimental Group, Second Grade on Arithmetic Test Administered in May, 1959

cause they were of the opinion that the other fields merited special attention. In any instance, the achievement in each subject area should make it apparent (1) that appropriate steps were not taken to have a well-balanced program of instruction; or (2) that there was some other reason why the pupils failed to make significant gains in all subject fields.

To determine whether the gifted pupils differed significantly from average first grade pupils, the Chi Square Test was used. The areas of reading, language, art, music, arithmetic, and social studies formed the basis for the test. Clear-cut differences were found between the gifted pupils in the experimental group and average pupils selected at random as they are seen by teachers. The gifted were perceived by teachers as able to perform far more complex tasks in all curriculum areas than were the pupils in the random average group. One of the tasks at the primary level then is to extend possibilities for pupil growth to curriculum areas other than reading and language in order to develop the individual capabilities of the pupils.

TABLE 18

Gains in Achievement in Various Subjects Made by Gifted Pupils Participating in Five Different Plans

Plan	Reading	Language	Art	Music	Arithmetic	Social studies
Enrichment	**5.21	**2.69	0.0	.54	.36	1.26
Enrichment	**4.50	**2.55	.19	.19	1.18	1.37
Cluster	**4.13	**4.31	*1.96	.19	**2.55	**2.75
Ungraded	**3.71	**2.83	1.58	1.09	1.09	*1.74
Acceleration	*3.19	*2.13	*2.13	.63	1.06	**2.34

* .05 level of significance
** .01 level of significance

Differences between the experimental gifted and the control gifted groups were evaluated also by the Chi Square Test. No significant differences between the groups were found in music and reading. Significant differences in favor of the experimental group were found in language, art, arithmetic, and social studies ($p < .81$).

The members of the control group were not identified to their teachers. Nevertheless, their performance in reading was rated as not significantly different from that of the members of the experimental group. The rating for both groups was high. If teachers attempt to provide materials for individual differences in reading, children have increased opportunity to do well despite identification, and this was the case.

In music, on the other hand, the similarity of rating was not due to high ratings, but probably to lack of emphasis within the total program. The pupils in both the experimental and the control groups were seen in the majority of instances as performing at the level of their class.

The significant differences favoring the gifted in other curriculum areas may stress the importance of identification and study of the gifted. If these children are known to their teachers, then teachers will attempt to provide opportunities for them in all curriculum areas. The perceived growth may be a result of these efforts when the gifted are compared to their control group.

MIDDLE AND UPPER GRADES

The problem of evaluating pupil achievement at middle and upper grade levels was not one caused by scarcity of instruments. It was rather one of choosing tests that would measure in both breadth and depth and would measure adequately at high levels of achievement. It was important, also, to choose instruments that measure some of the abilities which gifted pupils have to apply knowledge and to think critically as opposed to tests that measure only factual knowledge.

Achievement Tests

The entire population of gifted pupils, from the fifth grade up, experimental and control groups, took the six-test battery of the *Sequential Tests of Educational Progress (STEP)*[5] in May, 1958. The six tests cover the areas of arithmetic, reading, writing, listening, science, and social studies. The tests were given during a three-day period to determine the achievement levels of the pupils and to establish criteria against which the effects of experimental programs could be measured.

The test results established conclusively the tremendous academic power and knowledge possessed by the pupils in the study. The value of using individual intelligence tests to identify those who need special school planning was confirmed in the results achieved on the six tests. The extremely high performance in all academic areas was found to be in keeping with the pupils' measured potential. The need for special planning was made apparent by the wide discrepancy between the pupils' real performance and their actual grade placement.

Almost the entire group of students who were finishing eleventh grade at the time of testing had average scores beyond the average for college freshmen. Three-fourths of these students had average scores for the six tests well beyond the average for college sophomores. The total average score for college sophomores was 297, while the upper three-fourths of the high school juniors had average scores beyond 305. The majority of this group, then, had achievement scores well beyond those of the average student three years advanced in schooling.

The same fact essentially was true for those finishing the tenth grade. Three-fourths of these students also had average scores on the test battery beyond the average for the college sophomore. In other words, most of these students were beyond the average for the college student who was four years ahead of them in school. The performance of the sophomores actually leads to questions concerning the true performance of the juniors. A number of these students attained scores so nearly perfect on subtests as to raise questions regarding whether their real abilities and knowledge were being measured, because of test ceilings.

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[5] *Sequential Tests of Educational Progress*, Grades 4-6; 10-12; 13-14; 1956-58. Also called *STEP*. Princeton, New Jersey: Co-operative Test Division, Educational Testing Service.

The high performance of the gifted group was maintained at the eighth grade level. Nearly three-fourths of the gifted eighth grade pupils made average scores equal to or beyond the average for students in the twelfth grade. Over one-fourth of the eighth grade pupils were at or beyond the average of college freshmen.

The upper three-fourths of the fourth and fifth grade pupils were beyond the average achievement level of the seventh grade. The upper 50 per cent of these pupils were close or beyond ninth grade level. The upper quarter of this group placed beyond the average for tenth graders.

Figure 4 shows the great variation between the average performance of pupils and the actual performance of the gifted. If one used the average score as a criterion, it would seem more reasonable to think of the gifted fourth grade pupil as a ninth grade student, of the gifted eighth grade pupil as a high school graduate, and of the gifted high school population as already unmeasurable on standardized achievement measures.

In May, 1959, the six tests were administered again to evaluate the effects of the experimental programs on the pupils' achievement. The statistical design used allows initial differences in achievement between the experimental and control groups to be taken into account. The results of comparisons of experimental and control groups show that all of the experimental groups with the exception of two showed significant gains over the control group. In the case of the fifth and sixth grade group, which failed to meet the significance test, the gain missed significance at the 5 per cent point by .06. In the case of the eighth grade group, which failed to show significant gains, it was necessary to evaluate the gains of a very small group because of the extremely high cutoff point used by the school district in selecting the pupils. The fact that marked gains were made by 10 out of the 12 different plans evaluated is evidence of the value of the experimental programs. The true possibility for growth should be measured in view of the fact that these programs operated within budgetary limitations and for a limited period of time. A continuing program should have the effect of markedly extending the already evident differences between the experimental groups and those that did not have the benefit of special programs.

Table 19 shows the results of the mean STEP *(Sequential Tests of Educational Progress)* performance for matched groups at the end of the experimental year.

Figure 5 presents the STEP *(Sequential Tests of Educational Progress)* mean results by grade level for the final testing.

Interesting evidence of the effect of the experimental year is shown in Table 20. It can be seen from inspection of the gain scores of the national group that a yearly gain of five points would be reasonable.

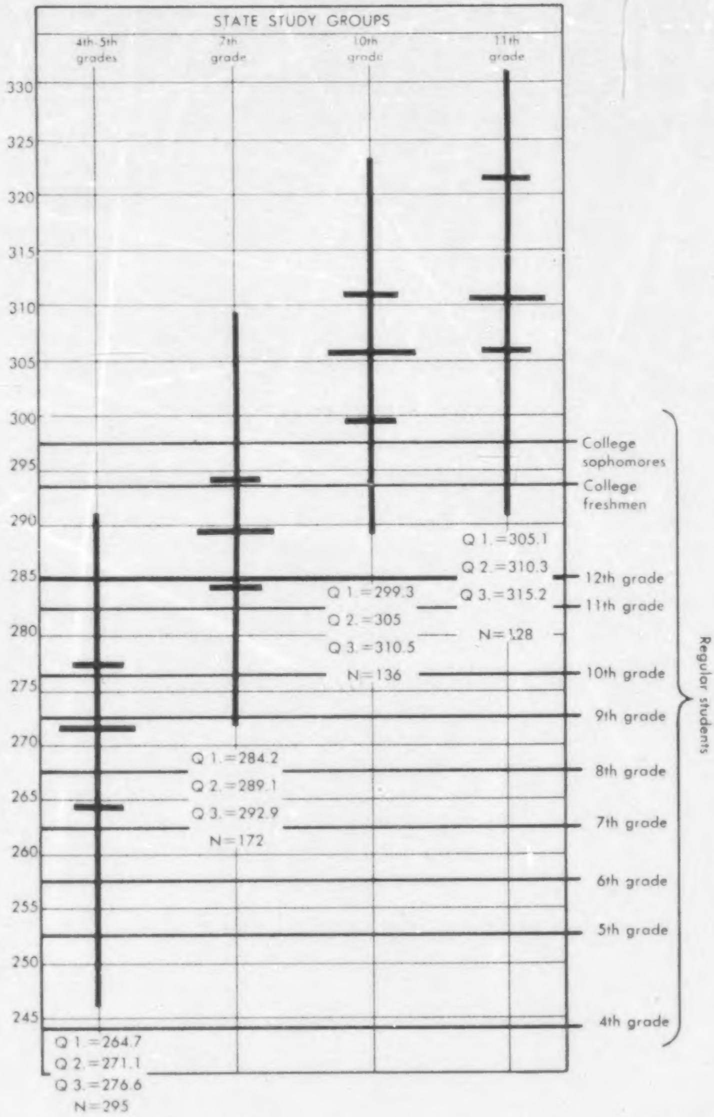

FIGURE 4. Variation Between the Average Performance of Pupils and the Actual Performance of the Gifted—Mean Results of Sequential Tests of Educational Progress (STEP) by Grade Level for Total Sample, First Testing

TABLE 19

Comparison of Mean STEP [1] Performance of Matched Groups at Termination of State Study, June 19, 1959

Grade level and plan	Mean STEP[1] performance	Standard deviation	Difference between means	F
Twelfth grade				
Acceleration	317.8	9.1	6.5	*6.35
Control group	311.3	9.7		
Twelfth grade				
Honors	317.9	6.5	6.5	*4.94
Control group	311.4	9.1		
Eleventh grade				
Special class	314.8	8.3	7.4	**7.66
Control group	307.4	7.9		
Eleventh grade				
Independent study	311.0	8.4	4.5	**12.52
Control group	306.5	7.6		
Eighth grade				
Special class	298.5	7.8	4.9	*6.52
Control group	293.6	9.0		
Eighth grade				
Sponsor	298.1	7.5	6.1	**10.04
Control group	292.0	10.5		
Eighth grade				
Acceleration	296.8	6.4	.7	0.0
Control group	297.5	5.9		
Fifth-sixth grade				
Saturday class	283.1	6.7	6.7	**9.89
Control group	276.4	9.1		
Fifth-sixth grade				
Special class	285.5	7.2	6.5	**22.42
Control group	279.0	10.1		
Fifth-sixth grade				
Part-time interest	280.4	8.1	3.0	4.11
Control group	277.4	9.9		
Fifth-sixth grade				
Cluster	283.6	7.3	5.5	**17.34
Control group	278.1	9.2		
Fifth-sixth grade				
Enrichment	279.2	10.0	1.5	**8.52
Control group	277.7	9.4		

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[1] Sequential Tests of Educational Progress.
* Beyond 5 per cent point.
** Beyond 1 per cent point.

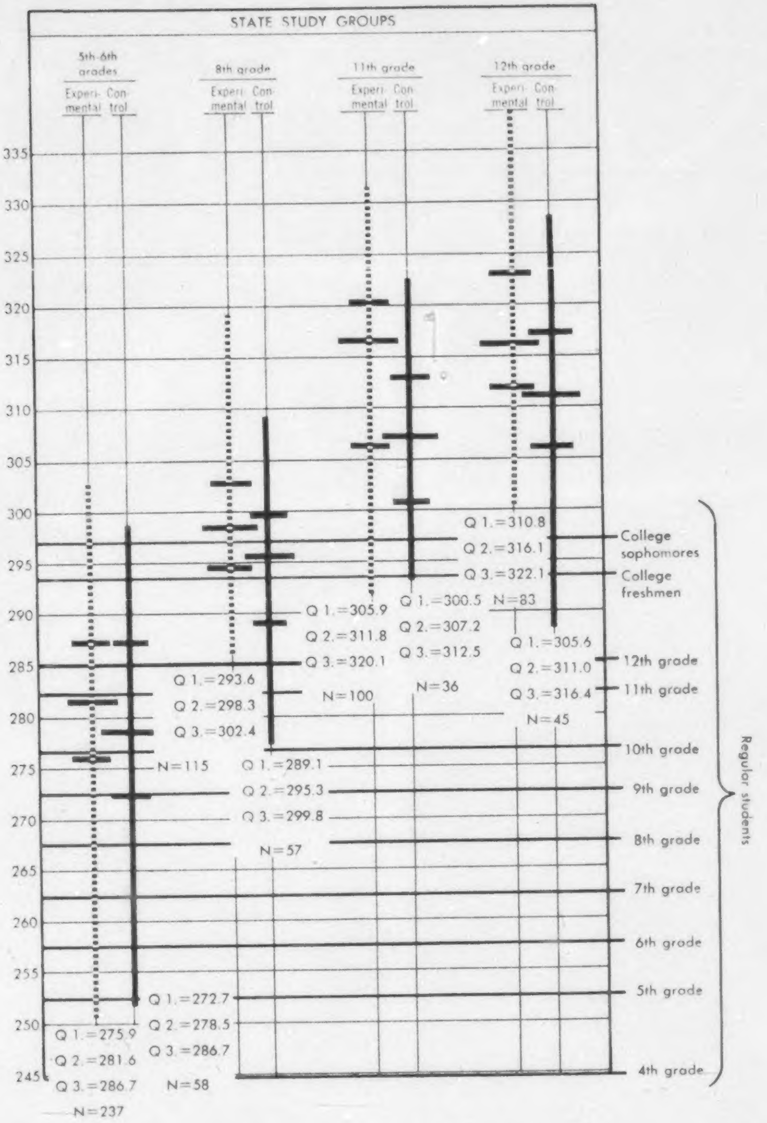

FIGURE 5. Mean Results of Sequential Tests of Educational Progress (STEP) by Grade Level, Final Testing

With the exception of the senior group, where ceiling problems may have had an effect, gain scores for the experimental groups were much higher than might have been anticipated. The kind of competition which the experimental groups had to overcome in order to obtain significant gains is shown in the gain scores made by the controls. The gain scores of the controls for the eighth grade accelerants were higher than those for the other eighth grade pupils. Gain scores for all of the fifth grade controls lead to the speculation that these individuals were having more than the ordinary program.

TABLE 20

Average Gains in Over-all STEP [1] Achievement for Experimental, Control, and National [2] Groups

Experimental groups in State Study			Gains of control groups in State Study	National group	
Grade	Educational plans	Gains		Grade	Gains
Twelfth	Acceleration	5.2	2.5	14	3.9
Twelfth	Honors	4.1	3.1	13	8.9
Eleventh	Special class	6.9	3.6	12	2.6
Eleventh	Independent study	9.1	4.1	11	5.6
Eighth	Special class	9.1	5.8	10	4.4
Eighth	Sponsor	12.2	5.1	9	4.8
Eighth	Acceleration	8.4	7.4	8	4.9
Fifth-sixth	Saturday class	12.8	8.8	7	5.0
Fifth-sixth	Special class	14.7	9.9	6	5.3
Fifth-sixth	Part-time interest	10.4	8.7	5	7.7
Fifth-sixth	Cluster	14.2	9.0	4	
Fifth-sixth	Enrichment	12.6	9.2		

[1] Sequential Tests of Educational Progress.
[2] National group gains are the means derived from the publisher's manual report of means for each of the six subtests.

Graduate Record Examination

During May, 1959, 75 high school seniors took the Area Tests of the *Graduate Record Examinations.*[6] The pupils were selected from the total experimental and control groups and were matched according to sex, intelligence, chronological age, and achievement on the comparable subtests from the *Sequential Tests of Educational Progress* (STEP).[7] The Area Tests were given to provide a criterion measure of pupil achievement for the gifted high school seniors. This was important because of the observed high performance of the senior group on the college level STEP tests. The Area Tests, designed for college graduate students, furnish test content difficult enough to assure adequate evaluation of the senior's knowledge. According to the test manual, they give a comprehensive appraisal of the student's orientation in three principal areas of human culture.[8]

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[6] *Graduate Record Examinations: The Area Tests.* Sophomore year college through graduate school, 1954. Princeton, New Jersey: Educational Testing Service.

[7] *Sequential Tests of Educational Progress, op. cit.*

The phenomenal results which gifted pupils attain when they are given tests that do not handicap them by ceiling problems are shown by these tests. In every one of the three Area Tests, the 75 gifted high school seniors made an average group score that surpassed the average for college seniors. Without formal enrollment in college, they were far beyond the average of the student who had spent four years in institutions of higher learning. The mean score for high school pupils in social science was 39 points beyond that of the college seniors. In humanities, the high school students surpassed the college seniors by 24 points; in natural science, by 78 points.

Further evidence of the academic level of the gifted high school seniors is shown by Table 21, in which the mean scores of the high school group are compared to those of students who had majored in the given areas for four years. In social science the high school pupils surpassed the college majors by 31 points. In humanities their mean score was only 19 less than the mean for the majors; in natural sciences, just 8 points less. The high school students compared creditably not only with the general college population but also with those students who had been specializing in selected subject matter areas for four years.

TABLE 21

Mean Scores of Gifted High School Seniors and College Seniors in Major Fields, on Graduate Record Examinations Area Tests

Type of student	Mean score in major field		
	Social science	Humanities	Natural science
High school senior in State Study	528	518	565
Regular college senior with major	497	537	573

The superior achievement of gifted high school seniors over that of college seniors is shown in Table 22. The per cent of college seniors who made scores lower than those of the high school group is greater for all of the listed scaled scores in the social and natural sciences. For example, only 44 per cent of the high school seniors scored lower than 540 in social science, while 66 per cent of the college seniors did so. In the humanities the college group had a slight advantage at the upper levels although the groups are closely comparable. Throughout the rest of the range, the high school seniors had a better rating. While 35 per cent of the high school seniors made scores lower than 500 in the humanities section, 51 per cent, or over half, of the college seniors did so.

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[8] *Graduate Record Examination Scores for Basic Reference Groups.* Princeton, New Jersey: Educational Testing Service, p. 4.

The 75 gifted high school seniors were members of both the experimental and control groups in the State Study. If comparison had been

TABLE 22

The Area Tests: Per Cent of College Seniors and Per Cent of Gifted High School Seniors Scoring Lower Than Selected Scaled Scores

Selected scaled score	Areas tested					
	Social science		Humanities		Natural science	
	College seniors (per cent)	Gifted high school seniors (per cent)	College seniors (per cent)	Gifted high school seniors (per cent)	College seniors (per cent)	Gifted high school seniors (per cent)
720	99	99	99		99	97
700	98	96	98	99	98	95
680	97	96	95	96	96	91
660	95	91	94	96	94	83
640	93	85	91	93	91	71
620	88	83	88	93	89	65
600	85	72	83	88	84	59
580	79	64	79	76	80	51
560	74	51	74	68	75	49
540	66	44	66	63	68	40
520	60	33	61	55	62	35
500	52	23	51	35	55	20
480	46	17	45	24	49	17
460	38	13	38	20	42	11
440	31	12	30	11	36	9
420	25	8	24	7	28	3
400	19	3	16	4	21	3
380	13	1	12	3	13	1
360	9		7	1	7	1
340	6		5	1	3	
320	4		2			
300	2		1			
280	1					
Mean score	489	528	494	518	487	565
Standard deviation	99	80	99	73	98	88
Number of pupils	3,035	75	3,035	75	3,035	75

made only between the norms of high school seniors in the experimental group and college norms, the difference in favor of the gifted would have been even more striking.

From a total of 53 seniors in the experimental group, three groups were matched with controls in IQ, sex, and socioeconomic status. Table 23 shows that the composite of the three experimental groups exceeded the controls on all three Area Tests of the *Graduate Record Examinations*. The difference in means for the social sciences was 16 points; for the humanities, 35 points; and for the natural sciences, 49 points. The difference in means for the humanities and the natural sciences was significant beyond the 5 per cent point.

An important final point to be made regarding the Area Tests is that the high school students enjoyed taking them. All of the examiners in charge of the testing reported that the students had commented on their interest in the content of the tests and had expressed their keen awareness of all the learning that still lay ahead of them. Perhaps the testing experience helped to develop some worth-while perspectives regarding their future education.

SUMMARY

Evaluation of achievement at all grade levels showed that the gifted pupils in the State Study, both in the experimental group and in the control group, performed at consistently high levels in all subject areas when their performance was measured by standardized tests.

The first grade pupils were evaluated on three instruments—a reading test, an arithmetic test, and a teacher rating scale. The reading test results showed that the gifted pupils in experimental programs made highly significant gains beyond those made by gifted pupils in the control group. The achievement levels of the former, in comparison with their abilities, rose markedly. In arithmetic the gifted pupils in the experimental group also made marked gains over those of the control group. The former showed themselves ready in both subject areas for work far advanced beyond that of their grades.

The teacher evaluation showed that the greatest gains were made in reading. This finding may possibly point toward the need for comprehensive, over-all curriculum enrichment in all subject areas for gifted pupils.

At the upper grade levels and in the high school, pupils in both the experimental and the control groups showed remarkably high initial achievement, far in excess of that of their grades. The gifted pupils in experimental programs made significant gains over those made by the pupils in the control group, despite the fact that the latter also made gains in excess of expectation.

The results of the *Graduate Record Examinations*, which were administered to a group of seniors, revealed the enormous academic power

TABLE 23

Comparison of Gifted High School Senior Experimental and Control Groups on the Results of the Graduate Record Examinations in Three Areas [1]

Group in State Study	Number of pupils	Areas tested								
		Social science			Humanities			Natural science		
		Mean score	Standard deviation	*t*	Mean score	Standard deviation	*t*	Mean score	Standard deviation	*t*
Experimental	53	532.3	78.6		528.1	71.3		579.1	80.0	
Control	22	516.8	82.6		493.2	71.5		530.4	99.0	
Difference		15.5			34.9			48.7		
Value of difference[2]				.763			*1.93			*2.23

[1] *Graduate Record Examinations.* College through graduate school; 1937-58. Princeton, New Jersey: Educational Testing Service.
[2] Value of *t* test of significance as applied to each difference.
* Beyond 5 per cent point level.

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of the State Study participants. The high school group exceeded the performance of college seniors in all three of the tests, and their achievement was comparable to that of college seniors who had majored in the tested subject areas.

The results of the initial evaluations of achievement show conclusively that the special provisions were of benefit to the gifted participants and that even more striking gains could be expected if the programs were continued.

Chapter 9

CHARACTERISTICS OF THE POPULATION

The data on which this study is based were taken from a total sample of 929 pupils. These were the pupils chosen at selected grade levels to participate in the various types of programs which were organized for them. For each plan only enough pupils were chosen to form the necessary number for an experimental group. Therefore, only a part of the gifted population in the urban counties and urban school districts participated in the study. In order to secure a sufficient number in the rural areas it was necessary to have much more comprehensive and complete coverage than was needed in the urban areas.

At a given grade level several different types of programs were studied but only one control group was employed. The number of pupils in the control groups is, therefore, less than the number in the experimental groups.

Because the study was made of programs, efforts were made to select groups which were equal on variables that might otherwise affect results. Therefore the total group is almost equally divided by sex, and the experimental and control groups are closely similar in IQ and chronological age.

NUMERICAL DESCRIPTION OF STUDY POPULATION

Table 24 shows the number of pupils by grade level and plan. Almost equal numbers are included in plans at the elementary level (493 pupils) and at the junior and senior high levels (436 pupils).

Similarities between the experimental groups and the control groups are shown in Table 25. All of the mean scores are within the 140 IQ range, and no difference between experimental and control groups exceeds 4 points. An examination of the standard deviations for the experimental and control groups shows that approximately two-thirds of the pupils within the groups are within the same range. For example, at the twelfth grade level, adding and subtracting the standard deviation from the mean for both groups gives closely comparable results (140.9+ and −6.5: 142.5+ and −6.3). The range for approximately two-thirds of the twelfth grade pupils in the experimental group is 134.4 to 147.4. The range for two-thirds of the twelfth grade pupils in the control group is 136.2 to 148.8. The table shows that in all groups but the eighth grade group a slight advantage accrues to the controls in IQ. This advantage, however, is negligible.

Further similarity is shown in chronological age. No difference between experimental and control groups exceeds 2.2 months. The experimental and control groups at eighth and eleventh grade levels are within a fraction of one month of each other.

TABLE 24

Number of Pupils in the State Study by Grade Level, Group, and Sex

Grade level and group	Number of boys	Number of girls	Total
12th Experimental	55	28	83
12th Control	28	17	45
Total	83	45	128
11th Experimental	54	46	100
11th Control	20	16	36
Total	74	62	136
8th Experimental	58	57	115
8th Control	36	21	57
Total	94	78	172
5th-6th Experimental	112	125	237
5th-6th Control	31	27	58
Total	143	152	295
2nd Grade Experimental*	13	15	28
1st Experimental	56	71	127
1st Control	15	28	43
Total	71	99	170
Total	478	451	929

* Established by school district without controls.

Another factor on which groups can be compared is socioeconomic status. The index used was the seven-point scale of father's occupation devised by W. Lloyd Warner. The scale was compressed by combining the sixth and seventh levels into the category *lower*; the third, fourth, and fifth levels into *middle*; and the first two levels into *upper*.

No attempt was made to secure equal numbers in the seven levels, but rather an effort was made to keep the seven levels equally represented within the experimental and control groups. A relatively small per cent of the total number of pupils come from the lower classification, with approximately equal numbers in the middle and upper classifications. Table 26 gives the per cent of pupils by grade level within each classification.

TABLE 25

IQ and Chronological Age of Pupils in the State Study by Grade Level and Group

Grade level and group	IQ			Chronological age				
	Mean	Standard deviation	Median	Mean	Standard deviation	Median	Years	Months
12th Experimental	140.9	6.5		198.6	5.6			
12th Control	142.5	6.3		197.6	4.3			
Total	141.5	6.5	141.5	198.3	5.2	198.4	16	6
11th Experimental	141.8	7.0		185.6	4.2			
11th Control	143.6	7.4		186.1	4.2			
Total	142.3	7.1	141.7	185.8	4.4	185.6	15	6
8th Experimental	144.9	11.0		149.5	4.8			
8th Control	143.2	8.2		149.2	4.1			
Total	144.3	10.2	141.9	149.4	4.6	149.4	12	5
5th-6th Experimental	143.5	10.7		123.1	6.5			
5th-6th Control	146.9	13.4		120.9	6.3			
Total	144.1	11.4	141.6	122.6	6.5	122.6	10	3
2nd Experimental	140.3	7.0	140.5	78.9	3.1	78.8	6	7
1st Experimental	140.0	8.2		72.0	3.4			
1st Control	140.3	8.8		70.9	4.0			
Total	140.1	8.4	138.2	71.7	3.6	72.3	6	0

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TABLE 26

Number and Per Cent of Pupils in the State Study by Socioeconomic Level

Grade level and group	Number of pupils	Socioeconomic level		
		Upper (per cent)	Middle (per cent)	Lower (per cent)
12th Experimental	83	37	57	6
12th Control	45	56	42	2
Total	128	43	52	5
11th Experimental	100	69	30	1
11th Control	36	47	52	0
Total	136	63	36	1
8th Experimental	115	58	40	2
8th Control	57	44	47	9
Total	172	54	42	4
5th-6th Experimental	237	43	55	2
5th-6th Control	58	53	44	3
Total	295	45	53	2
2nd Experimental	28	67	29	4
1st Experimental	127	46	53	1
1st Control	43	46	47	7
Total	170	46	52	2
Total	929	50	48	2

BACKGROUND DATA

Many of the common misconceptions regarding the characteristics of gifted children have been dispelled as a result of Terman's work.[1] In his study of a group of gifted children he found that the children were accepted by and attractive to their classmates. The gifted were superior to the average in size and general health, were far above their classmates in educational development, and displayed unusual skills and interests in many areas.

The present study was not planned to delve as deeply or as extensively into the background and characteristics of the children studied as Terman's study. Certain of the data collected for staff and teacher use, however, permit some worth-while comparisons with those in the studies made by Terman and others. Other data in this study provide a basis for interpreting and understanding the abilities, talents, interests, social skills, and values of the children studied. Background material from the State Study follows.

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[1] Lewis M. Terman and Others, "Mental and Physical Traits of a Thousand Gifted Children," *Genetic Studies of Genius*, Vol. 1. Stanford, California: Stanford University Press, 1926, p. 81.

Education and Occupations of Parents

In the State Study it was found not only that pupils in the Study were superior in educational development but also that their parents were better educated than the average parent. This was found to be true also in the Terman study. Terman reported a median grade completed of 12.1 for parents of gifted children whom he studied as compared to 6.9 for the general population. The educational level of the general population has risen considerably since the time of World War I, according to census figures.[2] Table 27 shows the general population in California to be more than two years ahead of the national median in education, and the parents of the pupils in the study to be more than two years beyond the California median.

TABLE 27

Median Educational Level of Parents of Children in the State Study, California Parents in General, and the National Population

Sex	State study population (parents)	California population[1] (general)	United States population[1] (general)
	Grade level	Grade level	Grade level
Men	14.7	11.2	9.0
Women	13.3	11.9	9.6
Total group	13.9	11.6	9.3

[1] 1950 Census

Table 28 shows the per cent of parents of children in the study completing each grade level. More than 45 per cent of the fathers had completed 16 or more years of schooling; only slightly more than 11 per cent had completed less than 12 years. Similarly, nearly 30 per cent of the mothers had completed 16 or more years; only slightly more than 7 per cent had less than 12 years of school. It can be noted, then, that the general education level for the parent group is high.

Further evidence of advanced schooling is presented in Table 29, which shows degrees held by the parents. Nearly 45 per cent of the fathers and nearly 25 per cent of the mothers held some kind of college degree. Over 10 per cent of them had earned the doctorate.

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[2] *United States Census of Population*, 1950, Vol. 2, Part 1.

TABLE 28

Highest Grade Attended by Parents of Pupils in the State Study

Grades	Father		Mother		Total number
	Number	Per cent	Number	Per cent	
Above 16	251	28.3	109	12.3	360
16	149	16.8	154	17.4	303
15	55	6.2	51	5.7	106
14	75	8.5	104	11.7	179
13	49	5.5	102	11.5	151
12	208	23.6	300	34.0	508
11	22	2.5	17	1.9	39
10	22	2.5	21	2.3	43
9	19	2.2	11	1.2	30
8	26	3.0	12	1.3	38
Below 8	9	1.0	5	.5	14
Total	885		886		1,771

TABLE 29

Degrees Held by Fathers and Mothers of Pupils in the State Study

Degree	Father		Mother	
	Number	Per cent	Number	Per cent
None	508	56.2	640	73.6
Bachelor's	238	26.4	188	21.5
Master's	68	7.5	31	3.5
Doctor's	90	10.0	9	1.4

Terman reported the following occupational classification for the fathers of the gifted children in his study:

	Per cent
Professional	31.4
Semiprofessional and business	50.0
Skilled labor	11.8
Semiskilled	6.6
Common labor	.1

The State Study staff found, as Terman found in his study, that the majority of fathers of children in the State Study were in the professional-management groups. Nearly two-thirds of the mothers listed homemaking as their only occupation. Occupations of parents of children in the State Study are shown in Table 30.

TABLE 30

Occupations of Parents of Pupils in the State Study

Occupations	Father		Mother	
	Number	Per cent	Number	Per cent
Professional	303	36.5	100	12.8
Managerial	148	18.0	6	.8
Skilled	123	15.0	6	.8
Sales	76	9.0	11	1.4
Semiprofessional	51	6.0	10	1.3
Agricultural	39	4.7	0	0.0
Clerical	30	3.6	75	9.3
Service	29	3.5	15	1.9
Semiskilled	24	2.9	7	.9
Unskilled	4	.5	0	0.0
Homemaker	0	0.0	558	71.0
Total reporting	827		786	

Despite, or perhaps because of, their own high educational attainments and occupational ranks, the parents of the pupils in the State Study are remarkably open-minded concerning their hopes and ambitions for their offspring. Approximately two-thirds of both fathers and mothers listed "None" or "Child's choice" when asked for their vocational goal for their child. Nearly all of the remaining choices were made in the professional category, with few choices indicated for the other vocational areas. The vocational goals listed for their children are shown in Table 31.

Developmental Data

Data gathered on the Parent Questionnaire (Appendix E) make it apparent that gifted children develop more rapidly than other children and mature earlier. The original purpose of the questionnaire was to give teachers and staff members complete histories of the children; nevertheless, certain items can be compared to data from other studies.

A few items were devoted to early development and health. Parents were asked to refer to baby books for answers if these books were available. Admittedly the data are subjective in nature. Nevertheless, a summary of the data in the reports for 600 to 800 pupils should have value.

Early language development is one of the consistent identifying marks of a group of gifted pupils. In parents' reports for 751 pupils, the median age for the start of talking was 10.6 months. And 696 parents reported

TABLE 31

Vocational Goal Listed for Pupil by Parents of Children in the State Study

Vocation	Father		Mother	
	Number	Per cent	Number	Per cent
None	377	43.4	334	39.0
Child's choice	206	23.6	234	27.1
Professional	248	28.5	244	28.4
Several	17	1.9	17	1.9
Semiprofessional	8	.8	10	1.2
Economic success	4	.5	1	.1
Altruistic	4	.5	10	1.2
Managerial	3	.3	2	.2
Semiskilled	1	.1	0	0.0
Clerical	1	.1	3	.4
Service	0	0.0	4	.5
Total reporting	869		859	

that their children were using complete sentences at the age of 17.4 months. Terman reported a median of 11.60 months for first talking by boys and 10.74 months for girls.[3] Parents of the Terman group reported "short sentences" by boys at 18.03 months; by girls, at 15.83 months.

The "first tooth" is one obvious source of pride to parents as they observe the development of their children. In the current study group, 729 children had their "first tooth" at a median age of 6.4 months. By comparison, Terman reported a median of 6.89 months for boys and 6.67 for girls.

Another phase of development where comparison is possible is that of sitting—761 California parents reported a median age of 5.6 months for this ability. Terman reported 5.83 and 5.81 months for boys and girls, respectively. Gesell [4] found the average age for first sitting for the general population to be 32 weeks, or approximately eight months.

The median age of 816 California children at the time they took their first step was 11.2 months. The Terman medians are 12.87 for boys and 12.72 for girls. Gesell found a median of 12.0 months (48 weeks) for the general population. In the parents' reports for 807 pupils in the current study, the median age for walking was 12.6 months. Gesell reports 60 weeks, or approximately 15 months, from his studies.[5]

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[3] Lewis M. Terman, *op. cit.*, p. 186.

[4] Louis P. Thorpe, *Child Psychology and Development.* New York: The Ronald Press, 1946, p. 428.

[5] *Ibid.*, p. 428.

It can be readily seen from the figures that the present study population was a group that advanced rapidly in its early development. In several of the phases reported, the figures are similar to those of Terman. In the skill of sitting, the children in the State Study were well ahead of the average as reported by Gesell.

Data from which the median ages for talking, first sentence, first tooth, first step, and walking were calculated are shown in Table 32.

TABLE 32

Ages At Which Various Development Occurred in Pupils in State Study, Reported by Parents

Age in months	Number of children					
	Talking	Forming sentences	First tooth	Sitting	First step	Walking
Above 28	3	44	--	--	--	--
25-27	4	18	--	--	--	--
22-24	32	145	--	--	--	2
19-21	14	65	--	--	--	12
16-18	77	212	1	2	22	83
13-15	64	114	10	3	181	315
10-12	287	80	73	16	477	356
7-9	227	10	273	209	133	39
4-6	41	3	351	518	3	0
Below 4	2	5	21	13	0	0
Total of parents reporting	751	696	729	761	816	807
Median months	10.6	17.4	6.4	5.6	11.2	12.6

One item in the developmental data section asked parents to give the age for first reading. The reports of 699 parents revealed that 7.2 per cent of the pupils started reading at the age of four years or shortly thereafter. By the time of kindergarten entry, 13.3 per cent of the children were reading, and before entry into the first grade, 45.2 per cent, or nearly half of them, had learned to read. Seven of the children learned to read at the age of two or three years. These children certainly would present needs for special educational planning and provisions in school.

Table 33 shows the age of first reading of pupils in the State Study as reported by their parents, the number of pupils reading at certain ages, the cumulative frequency, and the cumulative per cent. The table should be read as follows: Between the ages of 74 to 77 months eight children learned to read. Of the total of 699 children, 653 or 93.4 per cent had learned to read by the time they reached the age of 77 months or 6 years and 5 months—and so on down the column.

TABLE 33

Age of First Reading of Pupils in the State Study, Reported by Parents

Age in months	Number of pupils	Cumulative frequency	Cumulative per cent
Above 77	46	699	100.0
74-77	8	653	93.4
70-73	329	645	92.3
66-69	76	316	45.2
62-65	3	240	34.3
58-61	144	237	33.9
54-57	39	93	13.3
50-53	4	54	7.7
46-49	38	50	7.2
42-45	3	12	1.7
38-41	2	9	1.3
34-37	5	7	1.0
30-33	0	2	.3
26-29	0	2	.3
22-25	2	2	.3

SCHOOL ATTITUDES AND NEEDS

The attitude of the intellectually gifted pupil toward school is generally assessed by his parents as being exceptionally good, despite the fact that his needs are not being met fully. Altogether 87 per cent of the parents reporting classified their child's attitude toward school as either enthusiastic or good; 12 per cent as neutral or disinterested, or negative. (See Table 34.)

TABLE 34

School Attitudes of Pupils in the State Study, Reported by Parents

Child's attitude toward school	Number of parents reporting	Per cent of parents reporting
Enthusiastic	344	38
Good	440	49
Neutral or disinterested	69	8
Ambivalent	30	3
Negative	9	1
No attitude reported	5	1

Along with the favorable attitudes expressed, a large number of child needs were named by the parents. Over half of those named were intellectual in nature. It is apparent that the pupils in the State Study enjoy school, and yet their parents wish that school could offer a program that is more stimulating and conducive to the full and constructive use of children's intellectual abilities. Pupils' school needs cited by parents are shown in Table 35.

TABLE 35

School Needs of Pupils in the State Study, Reported by Parents

Child's need in school	Number of parents reporting	Per cent of parents reporting
Intellectual (needs challenge, stimulation; not busy enough)	541	52.8
None listed	278	27.2
Personality development	78	7.6
Social	45	4.4
Better teaching	35	3.4
School planning	15	1.5
Vocational guidance	14	1.4
Too busy	8	.8
Health problem needs recognition	6	.6
Acceleration	4	.4
Total	1,024	

Parents' Comments

Combining data into categories for tables always involves the problem of classifying comments. For example, the category, *personality development*, can include many kinds of specific needs. Another problem is that of loss of meaning. Therefore, it seems best to amplify the meaning of "school needs" by some direct comments taken from responses to the parent questionnaire. The comments that follow illustrate the varied meanings contained in Table 35.

GRADE ONE

> In order to evoke best response, should have (1) a warm, interested, teaching person; (2) a work level equal to her achievement level. I want my child to find learning a stimulating and happy experience. The attitude a child gets toward school and learning is more important than the facts stuffed into his head. Teaching him to be at home in the world he must live in, to live happily with his peers, is to me all important.

GRADE SEVEN

> To be challenged intellectually, according to the capacity. To develop curiosity about matters under study, to be able to work independently and to think independently. To develop leadership and the ability when given a problem to see it through to conclusion.

Greater activity with individuals of similar caliber. Greater opportunity for leadership and for self-expression in singing and writing; real friendships.

He needs more of a challenge and better presentation. He learns quickly and then becomes bored and restless. He is anxious to learn and be tested to show his knowledge. He loves math problems and quizzes and tests. At the dinner table we do math problems in our heads to see who arrives at the correct answers the quickest.

GRADE TEN

He needs teachers he can respect and who insist on high standards of study. He responds especially to teachers with enthusiasm and to teachers who expect adult behavior.

More stimulation, more correlation of curriculum to individual ability, more faculty counseling.

TALENTS AND SKILLS REPORTED BY PARENTS

The special talents and skills of the children studied will become increasingly important educational considerations. The fact that the parents reported children with 1,266 different abilities makes apparent the children's versatility. Of these abilities, almost one-fourth were in the fields of music and art. Table 36 shows dramatically the variety of things the children can do with exceptional skill.

TABLE 36

Special Talents or Skills of Pupils in the State Study, Reported by Parents

Talent or skill of child	Number of parents reporting	Per cent of parents reporting
Music—performance	183	14.4
Art—performance	136	10.7
Academic (mathematics, writing)	125	9.9
Manual—mechanical	100	7.9
Athletic	89	7.0
Memory	53	4.2
Dancing	48	3.8
Reasoning—logic	45	3.6
None listed	226	17.8
Other[1]	261	20.6
Total	1,266	

[1] *Other* talents and skills, and the number of parents reporting each, include the following: domestic pursuits, 42; creative writing, 39; human relations, 39; chess-games-puzzles, 28; public speaking, 26; leadership, organizational abilities, 24; language fluency, 22; dramatic skills, 22; physical co-ordination, 12; imagination, 6; persuasion, 1.

The various pursuits engaged in by the pupils are partly shown by the number and kinds of private lessons they were taking. (See Table

37) Nearly two-thirds of the parents of the 896 children taking private lessons stated that their children were taking or had taken some type of lessons. Almost half of the lessons were in music, with dance and athletics accounting for most of the remainder. The scope of the remaining types reported is interesting and points up somewhat diverse interests.

TABLE 37

Private Lessons Taken by Children Who Were in the State Study

Number of lessons per child	Number of children taking lessons	Per cent of parents reporting	Kind of lessons	Number of children taking lessons	Per cent of parents reporting
0	324	36.0	Music	436	48.0
1	333	37.0	Dance	222	24.0
2	159	18.0	Athletic	186	21.0
3	56	6.0	Language	23	2.0
4	16	2.0	Art	19	2.0
5	3	0.3	Baton	7	0.8
6	5	0.5	Drama	6	0.7
			Social	2	0.2
Total	896		Flying	2	0.2
			Modeling	1	0.1
			Total	904	

HEALTH DATA

As part of the background data on each child gathered for the use of the classroom teacher and curriculum consultant during the experimental year, medical examinations and teachers' reports of health observations were obtained. (See Appendixes F and G) These data were important in identifying special health needs of individual pupils. As was the case with the parent questionnaire, some of the items seem to lend themselves to comparison with data from the Terman study. A good case could be made for the better health of the present group, by comparing, item by item, the present evaluations with the school and physicians' blanks from the Terman study. Such comparisons are avoided, however, because of the variability in the physicians' evaluations in the Terman study, because of item variations, and because of the subjectivity involved in both types of report.

One item warrants comment. On the Terman school blank, 13.3 per cent of the pupils were classified as "nervous." In the present study, 6.8 per cent were so classified. The largest area of problem, according to the teachers who evaluated health status in this study, was that 12.5

per cent of the students appeared shy or withdrawn. This is a large per cent and should merit some analysis of causes. What are the factors in the environment of these pupils, who supposedly have so many assets in their makeup, that cause them to be rated as "shy or withdrawn"?

ADJECTIVE CHECK LIST AND TEACHER REACTION SHEETS

The adjective check list (Appendix H) was used to determine whether teachers could identify the characteristics of gifted pupils which had been found in other studies to be significant. It was found that the proportional importance of clustered factors was not different when comparisons were made between the gifted and random populations. The gifted had a somewhat higher incidence of factors but were not given recognition for those qualities associated with cognitive processes.

Several items indicated a need for in-service work with teachers in understanding the characteristics of gifted pupils. For example, in the primary group, many pupils were described as bossy or wanting others to notice them. Whether this was actually the case or whether the pupils' curiosities or their desires to contribute information might have given these impressions is a question that should be raised. An additional in-service value of the instrument was found in the identification of those pupils who were given disproportionately high negative ratings. These individuals were identified for special help during the year.

Teacher reaction sheets (Appendixes I and J) were used by the teachers in the spring of 1958 and again in the spring of 1959 to rate the State Study pupils on academic performance and personal characteristics. The evaluation was based on a three-point scale.

The evaluations which teachers made during the spring previous to the experimental year provided the teachers of experimental groups with much valuable information. The data from the reaction sheets was such that it could be used to identify pupils with special problems and needs in both academic and personal-social areas. The data also gave information regarding the pupils' special skills and abilities. The data proved to be useful to teachers in planning for their gifted pupils.

The best use of the reaction sheets was for individual study purposes. Comparisons of groups were difficult because the initial ratings given to the gifted were so high that trends and changes could only have been in an unfavorable direction. Actually, the change for any group from 1958 to 1959 was negligible.

RESULTS OF INTERVIEWS WITH PARENTS, PUPILS, AND TEACHERS

The interview is an excellent means of securing information regarding gifted pupils, their skills, attitudes, likes, and dislikes. During the identification period, interviews were held with parents, the pupils, and their teachers in all experimental and control groups. Interview questions centered upon three topics: motivation for school, peer relationships, and leadership. (See Appendix K) The chief purpose of the interview was to acquire information that would be helpful to the teachers working with the pupils during the experimental year. Considerable information regarding the children's special needs and abilities was secured during the interviews. This information was made available to teachers so that they could plan to meet specific problems of the pupils and to develop their special interests and skills.

Motivation for School

Through the interview it was found that the pupils at all levels generally had favorable attitudes regarding school. This was verified also through the parent questionnaire form. A very small per cent expressed actual dislike, ranging from 1 per cent at first grade to a high of 7 per cent at fourth and fifth grade levels. A smaller per cent of junior and senior high school students than of elementary school pupils actually disliked school. Whether this was due to the increasing possibility for freedom in curriculum choice is a matter of speculation.

Figure 6 presents the gifted group's motivation for school, as estimated through the combined judgment of the pupils, their parents, and their teachers. The total patterns of reaction for each group interviewed were in close agreement. The figure shows that 79 per cent of the kindergarten group had excellect motivation for school; 20 per cent had average motivation, and 1 per cent were poorly motivated.

Peer Relationships

The combined judgments of pupils, teachers, and parents indicated that the gifted pupils got along very well with others. Although differences between abilities and interests existed, the gifted apparently adjusted well enough to their peer group so that very few of them were judged to be below average in their interpersonal relationships. A rating of average was interpreted as satisfactory.

Figure 7 shows that the highest incidence of poor peer relationships occurs at kindergarten level, 14 per cent of the total. This is the level in school at which pupils, including the gifted, suffer some frustration in dealing with their peers. Many of the problems encountered by the gifted children in their school environment are caused by their extensive deviation from the average in certain skills and abilities. The farther that one deviates from the average, the more likely is he to encounter frustration. And, at this age, gifted children have not recognized that the burden for adjustment very often is theirs.

Leadership

The third major item discussed with parents, pupils, and teachers was that of leadership. (See Figure 8) Again the picture is favorable, with the great majority of gifted pupils at all grade levels rating either

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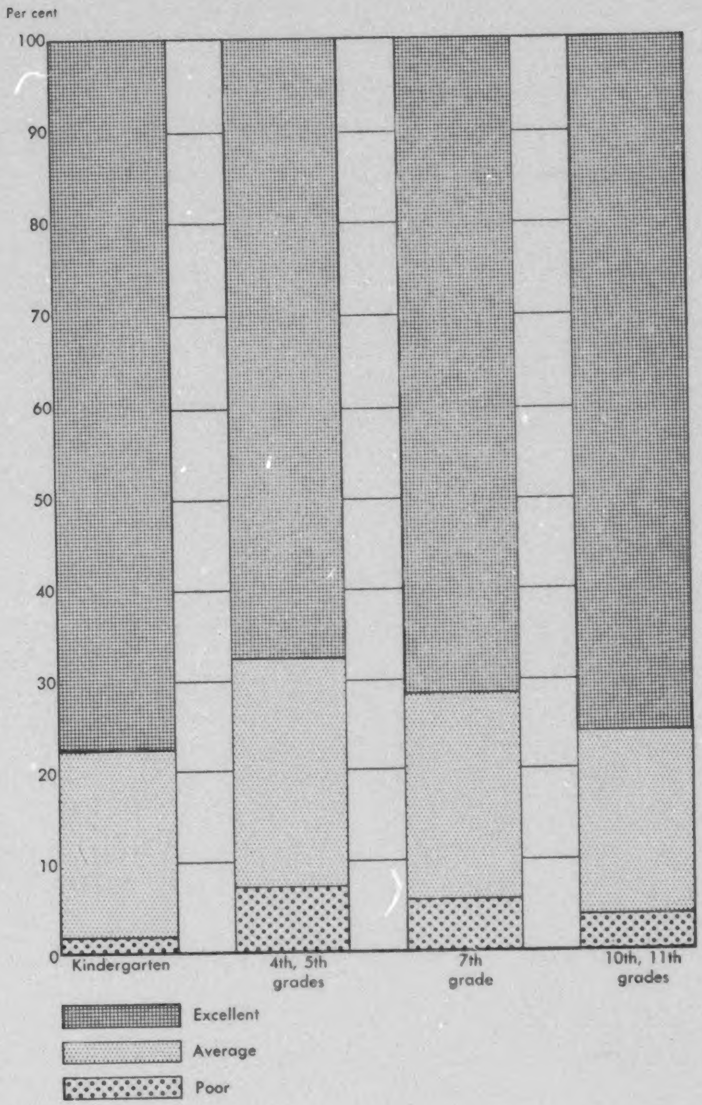

FIGURE 6. Pooled Judgments of Parents, Teachers, and Pupils Regarding "Motivation for School" of Pupils in the State Study

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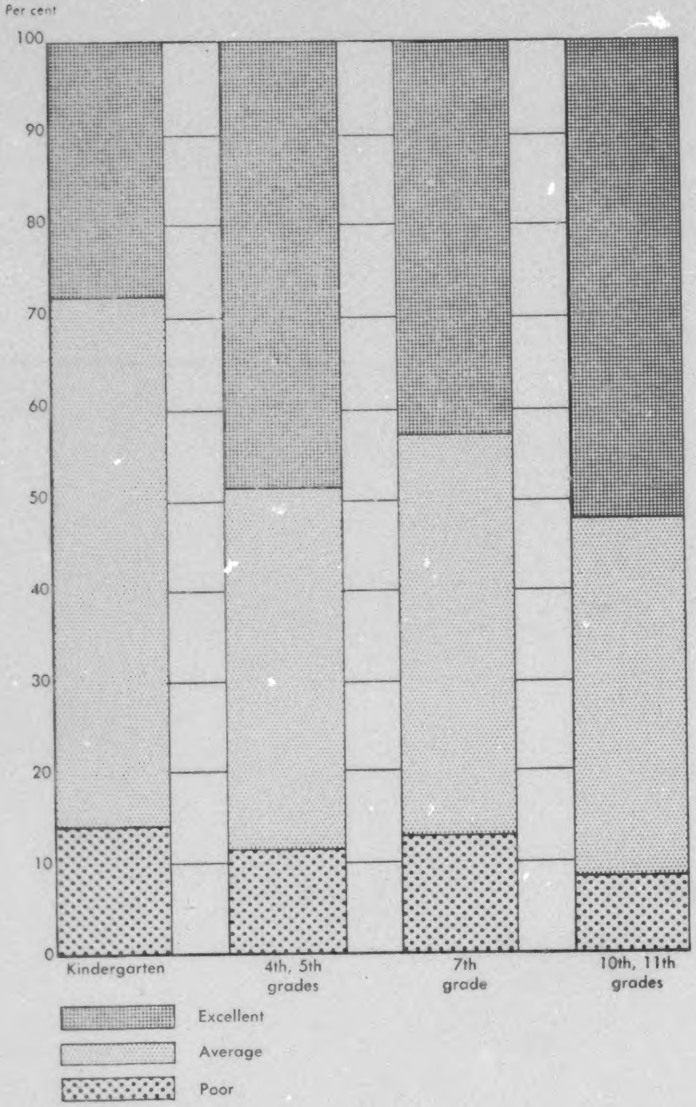

FIGURE 7. Pooled Judgments of Parents, Teachers, and Pupils Regarding Peer Relationships of Pupils in the State Study

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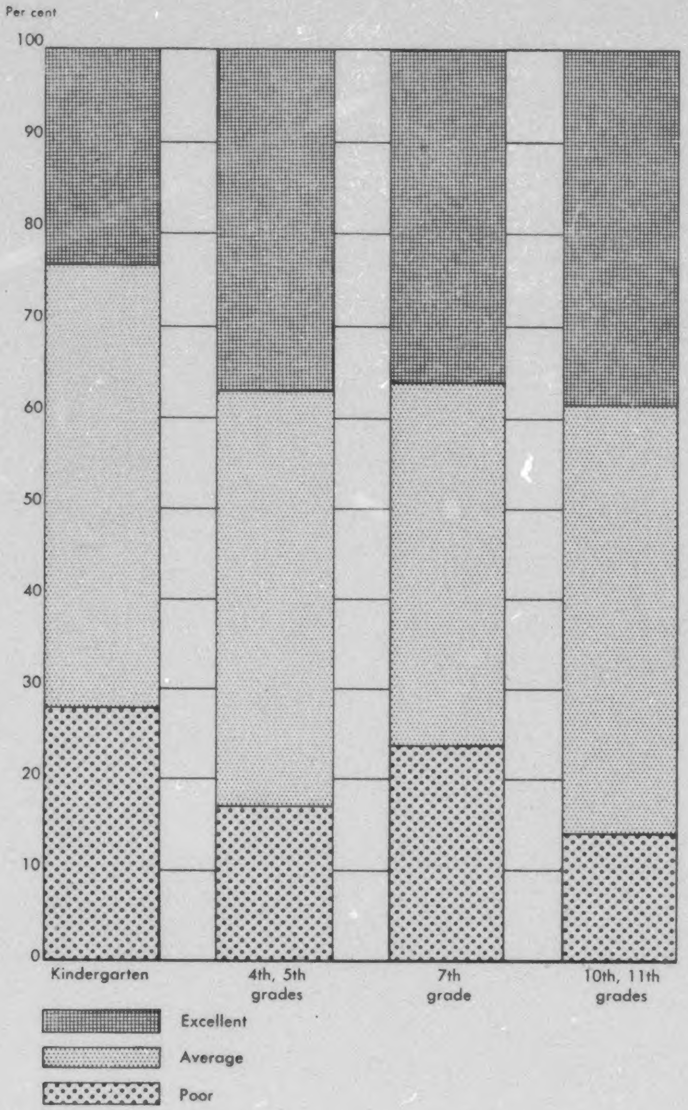

FIGURE 8. Pooled Judgments of Parents, Teachers, and Pupils Regarding Leadership of Pupils in the State Study

excellent or average. The highest rating occurred at the high school level, with 38 per cent of the group rated as excellent, and only 15 per cent as poor. Many of the "poor" ratings were made because of the specific, specialized interests of the gifted, which differed from those of the total peer group, and the pupils' disinterest in the usual types of school organizations or offices. The peer ratings, for instance, included a boy within the State Study who showed a highly developed interest in space exploration and who had developed several devices towards this end. This boy associated with friends who shared his interests and was well adjusted in his peer relationships but did not spend time in the usual group activities.

Comments of Pupils

The information that was collected from pupil interviews conducted at various grade levels revealed much about the pupils—their interests, characteristics, and attitudes. The desirable traits which they possess as a group are illustrated in the verbatim interview records that follow.

The following comment reveals the interests, maturity, and helpfulness typical of gifted children in the first grade:

> I got to be a milk helper and table cleaner. I got all the jobs. I like first grade because we get to work. We do spelling, arithmetic, and eat in the cafeteria. We got this chart. It was hard at first, but now they are too easy. I know what the green and red lights say for people to walk . . . I think I will be a teacher. I like children. I help them sometimes. These little kindergarten children cannot get into swings, so I lift them up. They are a little big, but I give them a shove to help them.

The comment that follows was made by a first grade boy with wide interests, great zest for learning, and a fund of knowledge far beyond that of the average six-year old:

> I want to learn really everything. I am six. I am going to like everything about school. Liked to see the movies the best last year. I had an ear test today, had to tell which ear you heard the sound. I liked that. It's to see if your ears are going. Got 3 younger brothers. No girls. It's all right! Daddy works in the Navy. He is overseas now, Japan probably. He was gone for seven months, only will be gone 3 more. I collect buttons. Play with them. I collect bugs and feathers. I found a seagull feather yesterday. I tape them on a card and write what they are under them. Keep bugs and put them in a jar with alcohol. Kill them with alcohol, then we put them in a box and label them. We have to make some boxes out of construction paper for the bugs. We lived in St. Louis. I like it better here than there. Went to see our grandparents once. It is really hot in Kansas City.

The following record of an interview with a first grade girl illustrates the perspective and interest in the future so often shown by young gifted children:

> Liked kindergarten. Liked everything. Like first grade, nothing too different. Glad I am in first grade. I am waiting to get to second so I can go traveling. Ride a 2-wheel bike. Like playground and games. Like merry-go-round best of all. Sometimes we fight, my sisters and I. It is natural once in a while. I am

going to be a doctor and go to medical school. Save our money especially when someone sends us a check. I know I will be a doctor.

Comments of Teachers

The information gathered from interviews with teachers was also most helpful and significant. The first interview record is the following brief comment regarding a fourth grade gifted pupil:

> He is about the closest thing to an ideal child—good in sports, socially well adjusted, wonderful sense of humor. I enjoy him in class.

The comments that follow reveal some versatile and specialized interests of two fifth grade boys:

> Does not like to write or to take exams where he has to write. Does not like spelling. Does not draw worth a darn. Wants to study hard and be a chemist. Always liked this since he mixed sand and water, and so on. Has an uncle who is a professor, wants to be like him. Has done zoo experiments. Likes to read science-fiction, fairy tales, tall tales, novels, and the like. Knows how to do unlike fractions. Was explaining this to the class because they haven't had it yet.

> Likes school a lot, likes reading and reads anything, especially adventure books, fiction, and so forth. Likes to do research. Likes art, especially sketching. Likes to do faces, cartoons, animals, anything mechanical, and scenery. Many children choose him for team captain because he is a good sport and fair. Likes music and plays guitar, violin, and trumpet.

Comments of Parents

The following three records of interviews with parents of boys and girls in the tenth grade depict the liking for school, highly developed interests, idealism, and tolerance so frequently found in the gifted high school student:

> School is more important than anything else in the world to Myra. She will go to school even with a temperature of 102°. Likes her teachers. Loves physical education. Will leave at 6:30 to go to school. Myra worries continuously about her school work, but always comes through with flying colors. She seems secure socially. She was asked to join three clubs. She likes the older girls, but won't go on dates with them. She loves to write. Very good at organizing activities. High frustration tolerance—she won't let anybody get her frustrated. Has huge production of ideas. Always finishes projects and wants them to be perfect. Works with others well.

> Philip's parents believe that Philip has the highest possible evaluation of the importance of school. He has tremendous interest in fields of learning that devolve from school learning. At the Fair he goes to the United Nation's building instead of the concessions to know more about the world and its affairs. He does not care too much for gym—he prefers golf, swimming, and bowling. He likes extracurricular activities. He always co-operates with the teacher. The parents feel that Philip's opinion of himself is very high in academic understanding, social status, speaking ability, and writing ability. They feel that his opinion of his manipulative ability is not even average, that he considers himself of only average strength (though good health), and that he is not good in active social effort though completely at home with others. Plays the piano.

The parents consider that Philip has only average ability in areas of active leadership, but is very high in areas of group co-operation. They consider his concern for completion of projects is tremendous. They cited instances of this: one when he got up at six o'clock to go to Burbank to hear someone give a talk at a junior college; and another when he volunteered to clean up the muscular dystrophy headquarters and spent his Saturday doing so. They cited his working in a restaurant washing dishes to get money to buy some clothes he wanted even though his father offered to buy them for him. However, his parents are not enthusiastic about Philip's acceptance of others' ideas. "He's at the age where he is cocky," his father says. "He's going to improve on the other person's ideas." (Philip's teachers, however, consider him very good in this area.)

Daniel's mother thinks he has the highest possible motivation for school. She cited instances where she urged him to stay at home because of a sniffle and he refused because he felt he might "miss something" in his classes. In cases where he received a low grade, his mother said she would suggest that the teacher had made a mistake. He would reply, "teachers never make mistakes—I just did not study hard enough." She admits he has not liked all shops. He has tremendous interest in all school activities and everybody is his buddy. He trusts and likes everyone, especially the underdog. She thinks his rating among his peers is very high, says they call him up all the time. But she comments that she still feels Daniel's attitude toward himself is a bit inferior, since he thinks he falls short of his sister's stature as an honor student at U.C.L.A.

Outside of acceptance of other's ideas, Daniel's leadership characteristics are all very superior. She says it is impossible to make him angry. She says his concern for completion of his projects is unbelievable. He worked on a stamp collection until its value commanded an offer of $8,000 (refused) and will take 15 books on scientific subjects out of the library at one time, including some in foreign languages for his mother to translate, in order to cover a single problem thoroughly.

ATTITUDES REVEALED IN ESSAYS

During the spring of 1958, the entire class groups in which gifted pupils were identified were asked to write short essays on two questions: (1) "Should There Be Special Plans in School for Bright Pupils? Why?" and (2) "Who Are the Persons Whom You Have Admired Most? Name One Living and One Dead and Tell Why." The teachers were requested to schedule the assignments so that the writing would be done during the regular language arts periods. (See Appendix L)

Essay Question: "Should There Be Special Plans in School for Bright Pupils? Why?"

The intent of the first essay was to assess the attitudes of pupils toward planning for gifted pupils before any of the pupils were aware of any involvement of themselves or their peers in programs. The essay title was therefore worded so that the interpretation of the words *special plans* would be that of the pupil. The assessment of attitudes was believed to be important, since many persons express opinions concerning the attitudes of school children toward various provisions for the gifted.

Table 38 shows the number and per cent of responses to the first essay on a "yes" or "no" basis. The responses are recorded for a total of 469 gifted pupils for the grades in which the essays were written, and for 67 pupils randomly selected from a total population of 374 sixth and eighth grade pupils.[6]

TABLE 38

Number and Per Cent of Responses of Gifted Pupils and of Responses of Those in the Random Group as Shown in Essays on the Question "Should There Be Special Plans in School for the Bright Pupil?"

	Grades 4-5		Grade 7		Grades 10-11		Combined	
Responses of gifted pupils	Number of pupils	Per cent	Number of pupils	Per cent	Number of pupils	Per cent	Number of pupils	Per cent
Yes	107	88.4	158	95.7	169	92.3	434	92.5
No	13	10.7	5	3.0	4	2.1	22	4.6
"?"	1	1.0	2	1.3	10	5.6	13	2.7
Total	121	----	165	----	183	----	469	----

	Grade 6		Grade 8		Combined	
Responses of pupils in random group	Number of pupils	Per cent	Number of pupils	Per cent	Number of pupils	Per cent
Yes	28	82.4	25	75.7	53	79.2
No	5	14.7	7	21.2	12	17.9
"?"	1	2.9	1	3.1	2	2.9
Total	34	----	33	----	67	----

The per cent of answers for the fourth and fifth grade gifted pupils is 88 per cent "yes," 11 per cent "no," and 1 per cent "?" Comparison with sixth grade pupils in the random group, who responded with a total of 82 per cent "yes," 15 per cent "no," and 3 per cent "?" shows that there is little difference of opinion on this question between the gifted and random groups at early elementary levels.

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[6] The sixth and eighth grade pupils in the random population were selected one-half year later than those in the gifted group. Thus the pupils in the random group were approximately one-half year older than the gifted when they wrote the essays.

Approximately 96 per cent of the seventh grade gifted pupils replied "yes," 3 per cent "no," and 1 per cent "?" And 76 per cent of eighth grade pupils in the random group responded "yes," 21 per cent "no," and 3 per cent "?" It is apparent that the gifted pupils at this level felt the need for special planning more strongly, whereas the average pupil gave approximately the same proportion of "yes" and "no" answers as did the sixth grade pupil in the random group.

In the tenth and eleventh grades the per cent of gifted pupil responses was 92 per cent "yes," 2 per cent "no," and 6 per cent "?" This is very similar to the distribution at the seventh grade level. Since the per cent of gifted responses at all three grade levels is about the same, their responses are combined with the resulting 93 per cent "yes," 5 per cent "no," and 2 per cent "?" The great majority of gifted pupils, 454 out of 469, or 93 per cent, favored special planning for bright pupils.

The combined figures for the pupils in the random group are 79 per cent "yes," 18 per cent "no," and 3 per cent "?" There is apparently little basis for the supposition that average pupils in general are opposed to special plans for the bright pupil. It seems plausible that with some effort at education and attitude development the per cent of "no" responses would decrease appreciably.

Table 39 shows the reasons cited by the gifted pupils and by those in the random group in support of their "yes" answers to the essay question, and the number and per cent of pupils, according to grade level, citing each reason.

The majority of responses under "subject matter and work need" related to the need for more and harder work; "administrative changes" that were suggested included those that pertained to class size, special programs, and time schedules; and "pupil self-realization" involved the need for bright pupils to realize their potentialities, not to be bored, not to be held back. "Service to community and nation" as a category is considered self-explanatory.

The gifted gave 1,053 reasons in support of their "yes" responses. The highest per cent of responses for the gifted was related to the need for pupil self-realization. The pupils in the random group cited most often the subject matter and work needs in their 55 "yes" responses.

In examining the negative reasons (See Table 40) it may be observed that only 58 reasons were given, as opposed to 2,003 positive reasons. The general tenor among the three categories of negative reasons is the need for *sameness*.

The flavor of the essays comes out best when one reads the essays themselves. While it is not possible to reproduce complete essays here, two excerpts are reproduced to enlarge and clarify the ideas presented in Table 39 and 40 and to exemplify the quality of thought contained within the writing. The essays from which the following excerpts are taken were written in support of special planning.

TABLE 39

Reasons Given by Gifted Pupils and Those in the Random Group in Support of a "Yes" Answer to the Essay Question "Should There Be Special Plans in School for the Bright Pupil?"

Gifted Group

Reason	Grades 4-5		Grade 7		Grades 11-12		Combined	
	Number of pupils	Per cent	Number of pupils	Per cent	Number of pupils	Per cent	Number of pupils	Per cent
I. Subject matter and work need	57	30.4	100	26.1	101	20.9	258	24.5
II. Administrative changes	43	22.9	96	25.0	113	23.3	252	23.9
III. Pupil self-realization	66	35.2	148	38.6	177	36.6	391	37.1
IV. Service to community and nation	21	11.2	39	10.1	92	19.0	152	14.4
Total	187	----	383	----	483	----	1,053	----

Random Group

Reason	Grade 6		Grade 8		Combined	
	Number of pupils	Per cent	Number of pupils	Per cent	Number of pupils	Per cent
I. Subject matter and work need	10	45.4	10	30.3	20	36.3
II. Administrative changes	0	0.0	5	15.1	5	9.0
III. Pupil self-realization	9	40.9	6	18.1	15	27.2
IV. Service to community and nation	3	13.6	12	36.3	15	27.2
Total	22	----	33	----	55	----

TENTH GRADE STUDENT

> I very definitely believe that special plans should be made in school for bright students. Not only through high school would such plans be advisable, but also through elementary and junior high. In my opinion, the bright student is severely handicapped all through school if he is forced to conform to the accepted standard of mediocrity. He is usually not taught the proper way in which to handle his intelligence and comes up against many problems with which he is not equipped to cope. Beginning in elementary school, the bright student often finds that he is the outsider in a group, not because he is really different, but because he is made to feel different.

SEVENTH GRADE PUPIL

> . . . if our country wishes to maintain its world leadership it must make certain changes and exceptions for the bright student, who is the future citizen and perhaps the future government leader of America. . . The knowledge that was given us by God, we should never let pass. . .

TABLE 40

Reasons Given by Gifted Pupils and Those in the Random Group in Support of a "No" Answer to the Essay Question "Should There Be Special Plans in School for the Bright Pupil?"

Reasons	Combined gifted		Combined random	
	Number of pupils	Per cent	Number of pupils	Per cent
I. Equality: (just the same as us; no better than the rest; everybody deserves the same)	10	21	4	36
II. Feelings: (resentment; make others feel dumb; not fair; make others feel bad; not fair to work harder; might think they are smarter than others)	24	51	6	55
III. Protective averageness: (need to be one of the group)	4	9	1	9
IV. Others	9	19	0	0
Total	47	--	11	--

Essay Question: "Who Are the Persons Whom You Have Admired Most? Name One Living and One Dead and Tell Why"

The second essay was written also during the regular school day, within the usual classroom situation. The purpose of this essay was fourfold: (1) to explore the hero-ideals of gifted pupils to ascertain the types of heroes selected at various age levels; (2) to determine whether there are identifiable change patterns with increase in age; (3) to assess the reasons for selection of heroes; and (4) to identify differences in selection, if any, between gifted pupils and those in the random group at different grade levels. An evaluation of the types of heroes selected should give important clues to the value systems and attitudes of the pupils.

The selected heroes were arranged into the following categories: Peer Figures; Family Figures; Sports-Entertainer; Humanitarian-Religious; Political-Statesman; Scientist-Educator; and Others. The "Others" category encompassed writers, folk heroes like Davey Crockett or Daniel Boone, explorers like Columbus, and so on.

Comparisons were made between the gifted and random groups to determine what differences existed between the two groups. At fourth and fifth grade levels, the gifted showed significantly fewer choices of peer figures than statistically expected in comparison to the sixth grade pupils in the random group, significantly fewer choices of Sports-Entertainer figures than expected and a significantly greater number of choices in the Scientist-Educator group ($\chi^2 = 32.61$, $p < .01$). A reasonable assumption at this age level, therefore, is that the gifted pupil is interested in humanity beyond the scope of those in his immediate environment, or with those removed but available through television, motion pictures, and newspapers, such as sports and entertainment figures. He seems more able to transcend limitations of time and space and has begun to select his heroes through familiarization by reading and study.

Trends that were noted in the analysis of fourth and fifth grade pupils in comparison to sixth grade pupils in the random group appeared to a greater extent by seventh grade. A marked difference between the gifted and random ($\chi^2 = 359.415$, $p < .01$) occurred in the areas of Family, Sports-Entertainer, Humanitarian-Religious, and Political-Statesman, the more notable difference being in the Sports-Entertainer category. The trend seemed to be for the gifted to identify as "great" more figures from the Political-Statesman area and next from Family, with approximately equal numbers in Sports-Entertainer and Scientist-Educator classifications. The random group, on the other hand, used the term "great" more for Family members. The responses of the random group were 56 per cent in the Family category, with Political-Statesman second.

By tenth and eleventh grades, the rank order of categories for the gifted students was (1) Political-Statesman, 30.9 per cent; (2) Family, 21.8 per cent; (3) Scientist-Educator, 14.5 per cent; (4) Humanitarian-Religious, 11.8 per cent; with Sports-Entertainer and Peer accounting for only 9 per cent of the responses. It seems evident that gifted students are able to look beyond the Family group for examples of "great" human beings.

When the reasons for choosing the particular "great" person whom the gifted admire are analyzed, ten categories can be established. They are as follows: (1) The Contributor to Others; (2) The Contributor to Me; (3) The Doer; (4) The Athletic and Strong; (5) The Thinker; (6) The Self-made; (7) The Person Who Appeals to People; (8) The Person Who Likes Me; (9) The Creator of the New; and (10) The Stalwart (the person who overcomes obstacles and makes a contribution). These are shown in Table 41.

Table 41 reveals certain interesting differences, at all grade levels, between average pupils in the random group and gifted pupils.

TABLE 41

Reasons Given by Gifted Pupils and Students and Those in the Random Group for Choice of "Great" Person

Categories of reasons	Gifted pupils, 4th-5th grades		Pupils randomly chosen, 6th grade		Gifted pupils, 7th grade		Pupils randomly chosen, 8th grade		Gifted students, 10th-11th grades		Students randomly chosen, 11th grade	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
I. The Contributor to Others	68	28.6	9	15.2	113	38.4	13	27.6	133	41.9		
II. The Contributor to Me	12	5.0	5	8.4	7	2.3	14	29.7	14	4.4		
III. The Doer	13	5.4	3	5.0	24	8.1	1	2.1	20	6.3		
IV. The Athletic and the Strong	11	4.6	3	5.0	15	5.1	1	2.1	4	1.2		
V. The Thinker	21	8.8	1	1.6	36	12.2	1	2.1	37	11.6		
VI. The Self-made	3	1.2	3	5.0	20	6.8	3	6.3	13	4.1		
VII. The Person Who Appeals to People	31	13.0	10	16.9	16	5.4	8	17.0	12	3.7		
VIII. The Person Who Likes Me	19	8.0	17	28.8	10	3.4	5	10.6	6	1.8		
IX. The Creator of the New	14	5.9	1	1.6	1	0.3	0	0.0	9	2.8		
X. The Stalwart	45	18.9	7	12.5	52	17.6	1	2.1	69	21.7		
Other reasons	0		0									
Total	237		59		294		47		317			

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A sharp difference can be noted in category VIII, The Person Who Likes Me. Of the random sixth grade group, 29 per cent cited this reason for picking the "great" person they admired; only 8 per cent of the fourth and fifth grade gifted pupils used this category. There was a sharp difference in the per cent of preferences grouped in category I, The Contributor to Others. Of the random group, 15 per cent used this; of the gifted, 29 per cent.

At the junior high school level, category II showed a marked difference; 30 per cent of the random group cited this category, but only 2 per cent of the gifted did so. The next notable differences appeared in categories V, VIII, and VII, respectively. Here again it can be seen that average pupils in the randomly selected group deemed those people "great" who possessed personal appeal (VII) or gave affection (VIII). These two categories accounted for 28 per cent of the responses of the random group but only 9 per cent of the responses among the gifted. Interestingly enough, category X, The Stalwart, had 18 per cent of the responses of the gifted; but only 2 per cent of the random group used this category.

In the high school sample of the gifted, 42 per cent of the responses were in category I; 22 per cent were in category X. Category V, The Thinker, had become the third most important reason, accounting for 12 per cent of the responses.

One may surmise that these particular choices among the gifted (1) are evidences of ego-strength: and (2) throw light on a possible relationship between cognitive factors and ego factors. This might also explain the noted and often observed mental health of the gifted groups and certainly warrants some intensive research.

Figure 9 shows the high ideals and values manifested by the gifted children. At all grade levels their hero choices centered upon the adult who works for the welfare of humanity and who often transcends great difficulty to make his contribution.

The quality of thought and the kinds of ideals gifted pupils possess were shown also by the statements in their essays. The following essay on a family figure exemplifies the understanding, compassion, and ability to relate to others shown by a seventh grade pupil:

> Mellowed by age, Granny is a staunch humanitarian and sincerely loves everyone, and no one is bad in her eyes. She has a keen feeling for loneliness, since she herself was an orphan who was shoved from one family to another. Although I suspect that some of her experiences have become twisted in her memory, the ideals behind them have remained the same. For her experiences, for her stories, for herself I admire Granny.

The following essay by a seventh grade pupil illustrates the admiration gifted children hold for those who work for the welfare of their fellow man:

> I believe Albert Schweitzer is a great man because he dedicated his life to helping others. He could have been a great musician or philosopher, but

> instead he went to Africa as a medical missionary. Africa is now his permanent home. There he teaches and cares for the natives. His religion, or belief, is that all living things should have the right to fulfill their natural lives. Who can say he is not one of the greatest men who have ever lived?

This paragraph from an essay written by a high school senior cites individual integrity as important:

> Carl Sandburg, in this life of little cogs, has managed to keep his personality individually his. He is still Carl Sandburg with the far-seeing eye that brings so many cloudy facets of life into sharp focus. He is happy with and within himself, because he has an indwelling power. I admire him because of this marvelous power, because he knows and believes what he knows.

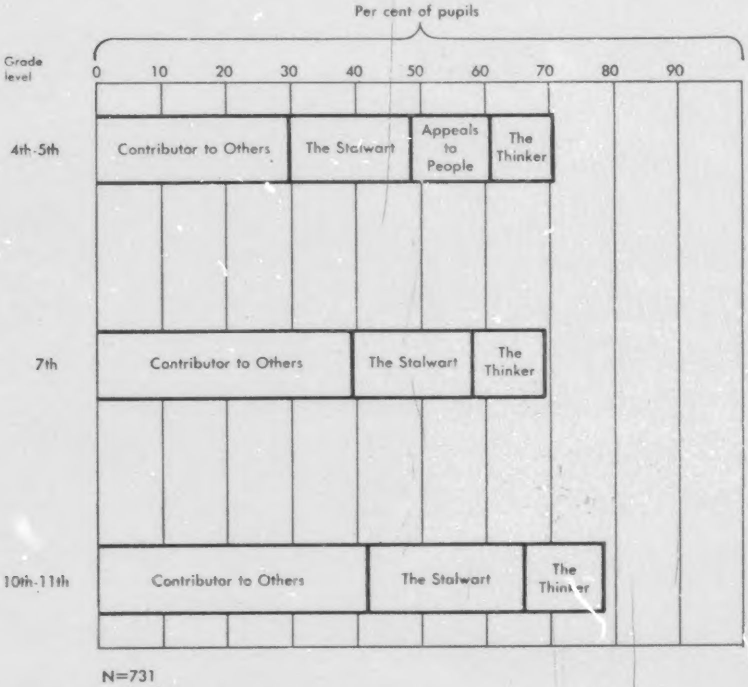


FIGURE 9. Reasons for Admiration of Heroes as Given by Gifted Pupils, According to Grade Level, and Per Cent of Pupils Giving Each Reason

The following exemplifies the diverse kinds of information included when sports figures were chosen by the gifted. This pupil was in the seventh grade.

> The living person I admire most is Samuel Reshevsky. At the age of eight or nine, he was giving simultaneous exhibitions of chess playing [illegible] 20 opponents and winning or drawing most of his games. He has def[illegible]r U.S. Chess Open Champion, Arthur Bisguier, decisively in match a[illegible]ment play. This year he went to the Chess Olympics in Munich, w[illegible]ne played first board on the United States team. The United States came in fourth in the final standings, but there is not much to be done against a Soviet team which has Botvinnik, the present world champion, and Smoplov, the former world champion.

When one names a person whom he admires or makes a choice for a specified reason, he does not necessarily reveal the basis for the choice, nor the values he holds that cause him to make this choice. Background knowledge and interests play an important role. The complete essays that follow further illustrate the maturity and perspective which gifted pupils possess:

> The great semanticist Dr. Hayakawa is one person whom I greatly admire. I know nothing of the man's personal life, but admire him for being an expert in his field. Semantics is the field with the brightest future, in which man can express himself. This field will be the key to outer space. Everyone is somewhat interested in semantics. To have as much knowledge as he commands on this subject, is what I truly admire.

> The man no longer living whom I most admire is Leibnitz. I admire him because of his great intellectual achievements. He was one of the world's greatest thinkers. The range of his work was tremendous. Stuart Hampshire, in the Mentor Philosopher's Series, says that "Leibnitz was perhaps the most universal genius of the modern world." His influence was felt in mathematics, sociology, engineering, and philosophy. In the field of mathematics he invented the first usable infinitesimal calculus and anticipated the work of Boole in symbolic logic. In the field of sociology, he planned a union of the churches and invented a universal language. In engineering he conceived of calculating machines and saw the advantages of the binary number system. He is best known, however, for his work in philosophy. He believed that this is the best of all possible worlds. He thought that the world consists of numberless separate and indestructible things called monads, which exist in pre-established harmony. Certainly, no one can deny that he accomplished much with his great ability, or that he is also worthy of our admiration.

> The dead person whom I admire most is Mohandes Gandhi. His whole life was dedicated toward what he felt and sometimes even "knew" was right. Whatever he worked for was not designated to being power to himself, but, instead to free someone from oppression or to lift the burden of misery from the shoulders of some person or persons whose lives seemed hopeless. Most people who had achieved what Gandhi did (the independence of a nation, and overthrowing of a government), were doing so with the purpose of gaining power and glory. They also reached their ends by vicious means, unlike the gentle ways of Gandhi.

These, then, are some of the qualities of uniqueness and promise that make proper educational planning for gifted pupils important.

Chapter 10

EVALUATION OF PUPILS BY PARENTS, TEACHERS, AND SELVES

Evidence throughout the State Study points out the excellence of the pupil population within the study. Data gathered from the interviews, essays, and preliminary standardized tests all show that the individuals selected for the study ranked at the top of the school population in personal adjustment and scholarship. This excellence must be given full consideration when any attempt is made to evaluate the pupils.

A pupil might, for example, start at the top of his group in ability to solve problems or in motivation to learn. On a subsequent rating he could show some loss and still rank at the top of a given group. In other words, although there has been no gain or even some loss, his performance might still be extremely high. Evaluation within the range of the total population is different from evaluation within a highly selected group. The children in this study would receive a rank of *A* on an A-B-C-D-F scale if they were compared to all of their peers on many items. Indeed, most of them would be in the upper limits of the *A* group. What an evaluation of growth means, then, is the evaluation ranging within the limits of the upper 1 or 2 per cent, from extreme competence to absolute ceiling. Growth on a broad scale is not involved. What is measured is constricted possibility for growth within the limits of extremely high bases. It is important to keep in mind the element of high quality in an examination of the data presented in this chapter.

To arrive at an assessment of the effectiveness of the experimental programs, pupils, teachers, and parents were asked to evaluate the growth of the pupil in fifth grade and above on 16 factors. Parents and teachers were asked to evaluate the effectiveness of the State Study in relation to the 16 factors; and pupils were asked to think of the year's work, without reference to a study as such. This variation occurred because not all of the pupils, particularly at the fifth and sixth grade levels, were aware that they were participating in a special program. The second variation was in the wording of the forms (see Appendixes M, N. O). Although it was necessary to change the wording for the three groups, the meaning of each item was kept identical for all three.

The factors evaluated by pupils, teachers, and parents were developed to answer some of the questions which might be asked regarding the merits of special planning for the gifted. It was believed that those interested in the effects of programs would want to know the answers to the following questions:

1. Have these pupils improved in their knowledge and their ability to acquire knowledge?
2. Has the quality of their thinking and reasoning ability improved?
3. Have they developed leadership qualities commensurate with their abilities?
4. How has school affected their interpersonal relationships and attitudes?
5. Has the program had an effect on their desire to learn?
6. Have they developed self-understanding?

The 16 factors, all of high importance in evaluating the education of gifted children, are (1) ability to solve problems; (2) knowledge of subject matter; (3) interest in school; (4) ability to see relationships; (5) research skills; (6) ability to work independently; (7) status in peer groups; (8) critical thinking ability; (9) rapport with teachers; (10) motivation toward learning; (11) basic skills; (12) intellectual curiosity; (13) ability to accept responsibility; (14) ability to experiment with things and ideas; (15) self-understanding; and (16) acceptance of leadership roles.

The items were chosen to evaluate the total school performance of the pupils as well as their behavior and attitudes. Those items in the cognitive area (having to do with skills in learning and knowledge) were grouped as follows: ability to solve problems, knowledge of subject matter, ability to see relationships, and basic skills—all under "subject matter competence"; research skills, critical thinking ability, ability to experiment with things and ideas, and ability to work independently—all under "intellectual modus operandi"; interest in school, motivation toward learning, and intellectual curiosity—all under "intellectual stimulus." The remaining noncognitive group (dealing with relationships and attitudes) consisted of the following items: "relationships with teacher" (rapport with teacher, ability to accept responsibility), "interpersonal relationships" (status in peer group and acceptance of leadership roles), and "self-understanding." Each of the items presented in Figure 10, then, is an average of several items from the list of 16, with the exception of "self-understanding," which appears as item VI in the noncognitive areas.

Each of the 16 items was ranked by pupils, teachers, and parents on a five-point scale that ranged from low to high as follows: "marked increase," "some decrease," "about the same" (frequently referred to in this study as "no change"), "some increase," and "marked increase." The following weights were assigned to the ranks: "marked decrease,"

−2 points; "some decrease," −1; "no change," 0; "some increase," +1; and "marked increase," +2. Totals on each item were computed for each plan. The per cent of gain was calculated by dividing the total achieved by the total possible. All scores, plus and minus, were included in the rating for each item. Loss could have occurred, therefore, on any item at any grade level for a given group. The per cents of gain in pupil progress are shown in Figures 10 through 15, all presented in this chapter.

FIFTH AND SIXTH GRADES

The material that follows pertains to the evaluation of pupils in the fifth and sixth grades.

Cognitive Areas

Figure 10 represents the evaluation of pupil growth in the cognitive area. It can readily be seen that the combined judgments by pupils, teachers, and parents on pupil performance in various aspects of school learning and the acquisition of knowledge indicate *increases*, since the entire scale ranges from "no change" to "marked increase." No losses occurred for any group, nor did any group indicate "no change" for a category. The highest ratings appeared in the special class and Saturday class programs, with enrichment programs showing a lesser estimate of increase. The lowest rating of pupil growth in cognitive areas was made by regular teachers whose pupils were engaged in special programs, although even these teachers indicated growth. The ratings of the teachers who worked directly with pupils in special interest groups and Saturday classes, although much higher, were not included because they represented the judgment of only one person as opposed to the judgment of a group and therefore would be misleading. The difference between Saturday class regular teachers and special interest regular teachers may be a direct result of in-service training, since the Saturday class regular teachers participated while the others did not. An over-all inspection of Figure 10 shows that the pupils went from a high level of performance in cognitive areas to even better attainment.

Noncognitive Areas

The highest ratings given in noncognitive areas were in "self-understanding." Pupils in the Saturday class program showed much interest in this item, and the parents of pupils in the special class were of the opinion that their children had gained a great deal on the same factor. The highest total rating was the self-rating by pupils in the Saturday class. It is interesting to note that regular classroom teachers of children in the special interest group rated the pupils much higher in noncognitive factors than they did in the cognitive areas. This may indicate a need for increased communication regarding the academic work in the

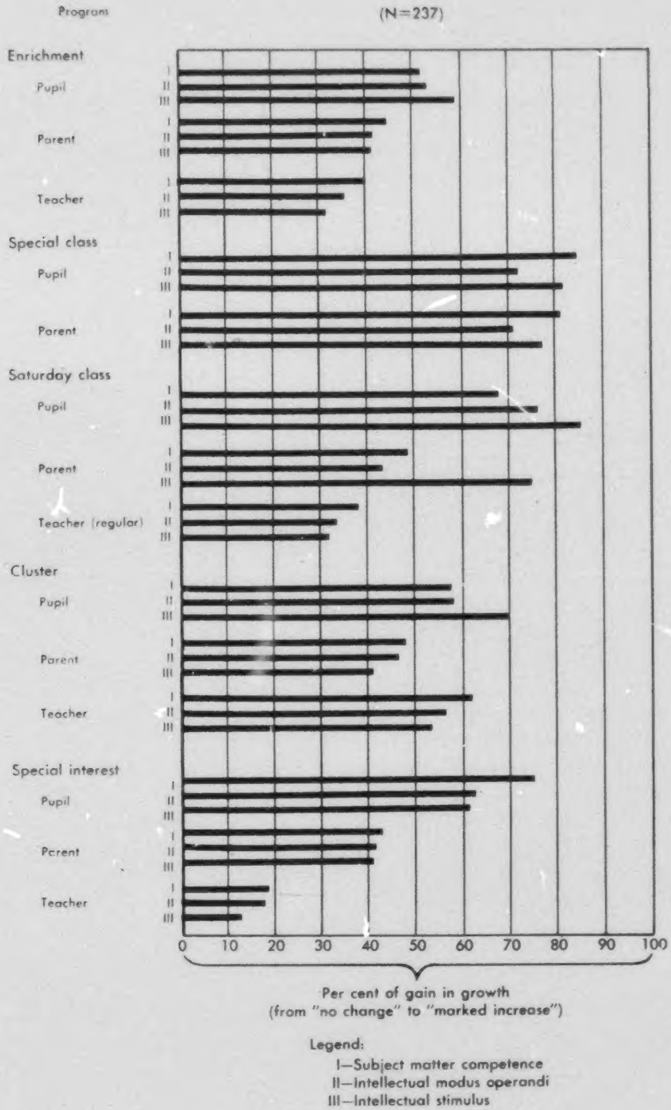


FIGURE 10. Evaluation of Pupil Performance in Cognitive Areas for Grades Five and Six

special interest group. This seems especially evident in view of the discrepancy between pupil and teacher ratings in the cognitive area. Figure 11 shows the relative increases made by pupils in various plans within the noncognitive area. (See page 102.)

EIGHTH GRADE

The material that follows pertains to the evaluation of pupils in the eighth grade.

Cognitive Areas

The highest ratings in the cognitive areas at the eighth grade level were self-ratings given by pupils of the special class and acceleration programs in subject matter competence. The least increase was indicated by parents of accelerants and by regular teachers of pupils working with community sponsors. A factor in the accelerant parents' evaluation may be that the program had been carried on for several years previously. As programs are maintained over a period of time, they inevitably lose their aura of uniqueness and become part of the accepted pattern. The discrepancy between pupil-parent and teacher ratings in the community sponsor program may point out again the need for close communication regarding special activities and projects.

A high and uniform growth was shown in subject matter competence by the special class and acceleration pupils, according to all judges. On the other hand, the greatest effect of the sponsor program, in the opinion of all, was intellectual stimulation. Figure 12 shows the evaluation of pupil performance in cognitive areas for grade eight. (See page 103.)

Noncognitive Areas

As was the case with fifth and sixth grade pupils, the highest ratings in noncognitive areas for grade eight were given in "self-understanding." The regular teachers were the only evaluators who did not give this factor the highest rank. Again one notes that the parents of accelerants gave a lower growth rating than did parents of other participants. The lowest over-all rating was given by regular teachers of community-sponsor pupils. This rating is in marked contrast with the estimate of pupils and parents. Figure 13 shows the evaluation of pupil performance in noncognitive areas for grade eight. (See page 104.)

ELEVENTH AND TWELFTH GRADES

The material that follows pertains to the evaluation of students in the eleventh and twelfth grades.

Cognitive Areas

Increases in performance in the cognitive areas were again evident at the eleventh and twelfth grade levels. "Subject matter competence" was given the highest rating for most of the plans. The lowest ratings

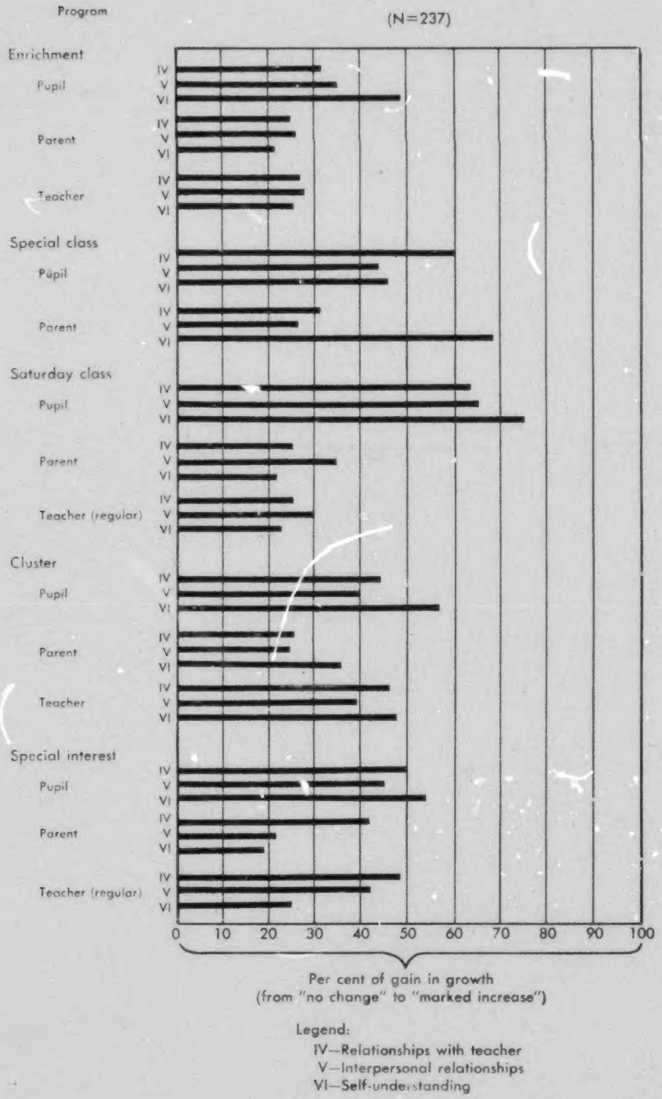


FIGURE 11. Evaluation of Pupil Performance in Noncognitive Areas for Grades Five and Six

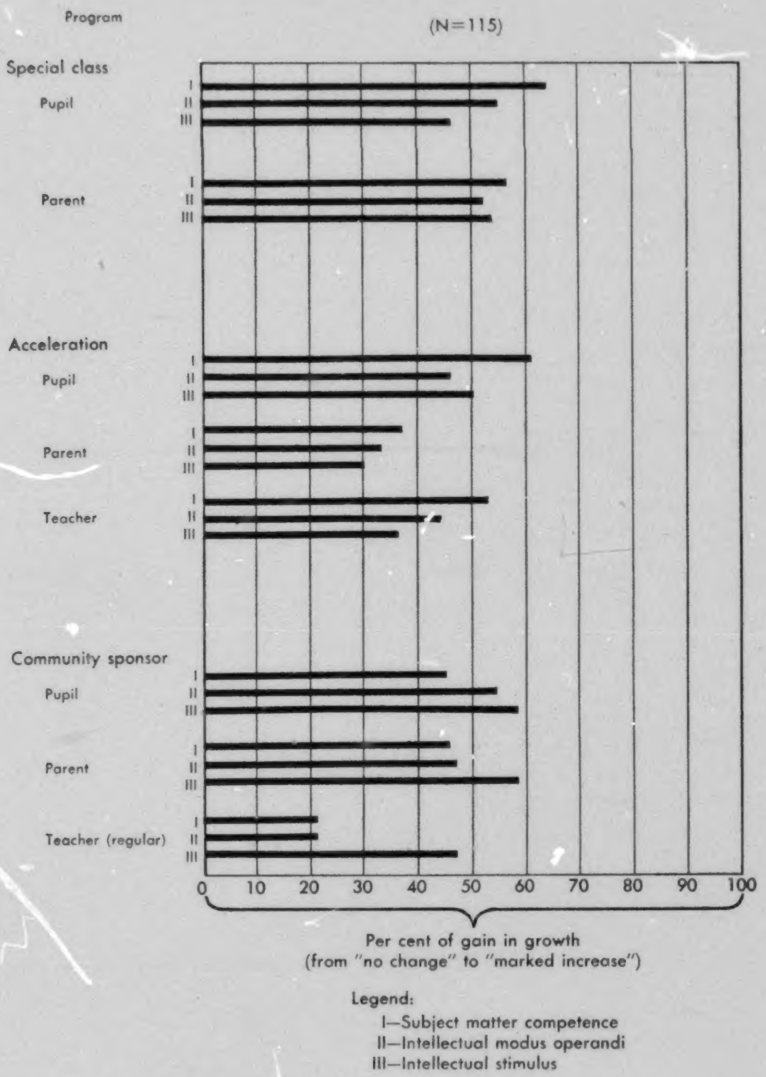


FIGURE 12. Evaluation of Pupil Performance in Cognitive Areas for Grade Eight

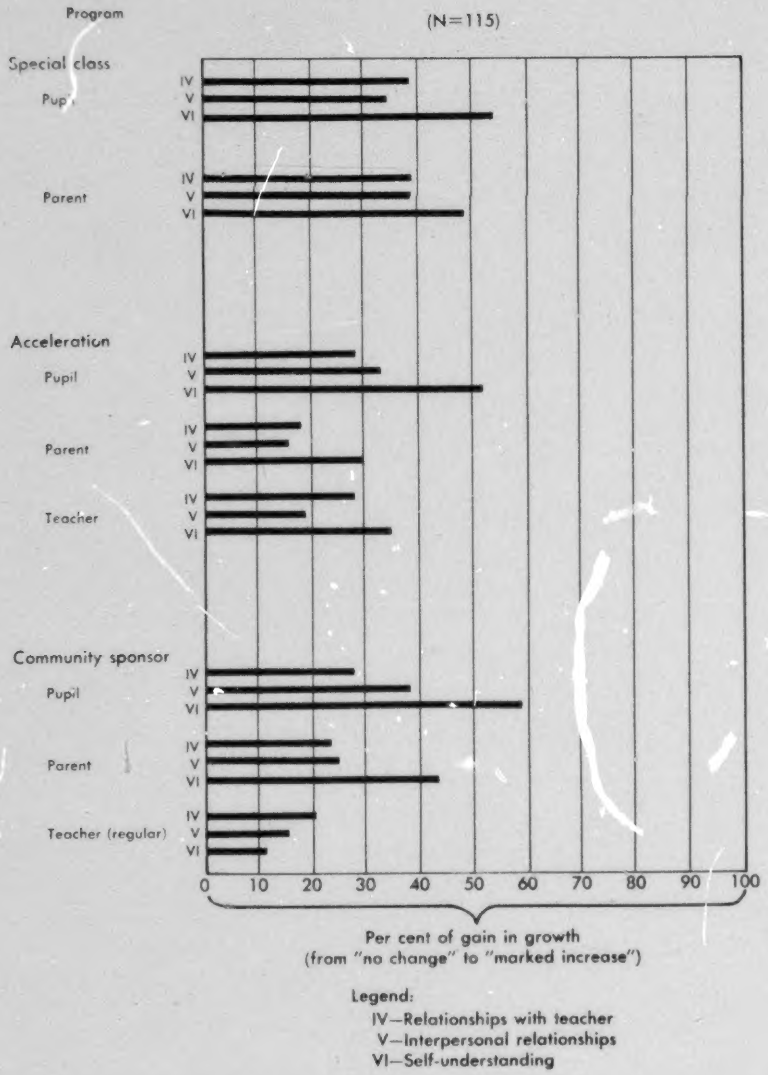


FIGURE 13. Evaluation of Pupil Performance in Noncognitive Areas for Grade Eight

were those given by students in special classes and their parents on the item of "intellectual stimulus." Gains reported by regular teachers in the various plans were high and denoted a carry-over value of the various programs. Again, all ratings were ratings of *increase* and indicated growth as a result of the year's work. Figure 14 shows the evaluation of student performance in cognitive areas for grades eleven and twelve in special class and in independent study, honors, and acceleration groups as made by the student, the parent, and the regular teacher. Evaluation was made in subject matter competence, intellectual modus operandi, and intellectual stimulus. (See page 106.)

Noncognitive Areas

Evaluations on noncognitive factors were consistent with those at other grade levels. Students with high initial ratings on the three constellations summarized in Figure 15 showed gains as a result of their programs, and again one of the noteworthy areas of gain was in self-understanding. This was true in the opinion of all raters except the regular classroom teachers in one instance. As was true at the other grade levels, lower ratings were given by regular classroom teachers, who had less direct contact with the effects of programs than either students or parents. Figure 15 shows the evaluation of student performance in noncognitive areas for grades eleven and twelve in three areas—relationships with teacher, interpersonal relationships, and self-understanding. (See page 107.)

SUMMARY

The pupils who started at a high level of performance in the State Study showed growth in every one of the six constellations summarized in the preceding graphs. This growth was uniformly true at all grade levels. Important patterns of growth were evident in both cognitive and noncognitive areas, with "subject matter competence" and "self-understanding" showing particularly high ratings. It is clear also that many of the programs afforded much intellectual stimulation. Apparently pupils, parents, and teachers found much of benefit in programs during the year although the identified growth areas vary from program to program. The fact that regular classroom teachers almost always rated growth lower than others indicates again the need for interpretation and close communication regarding special programs.

Finally, it is important to emphasize the fact that parents, teachers, and pupils were asked to evaluate the pupils on the basis of their participation in the State Study. This was stated in the directions on the form for parents and was stressed in meetings with teachers. The special direction relative to the study was given so that the evaluation would be on the effects of the *program* rather than on the work of the usual school year.

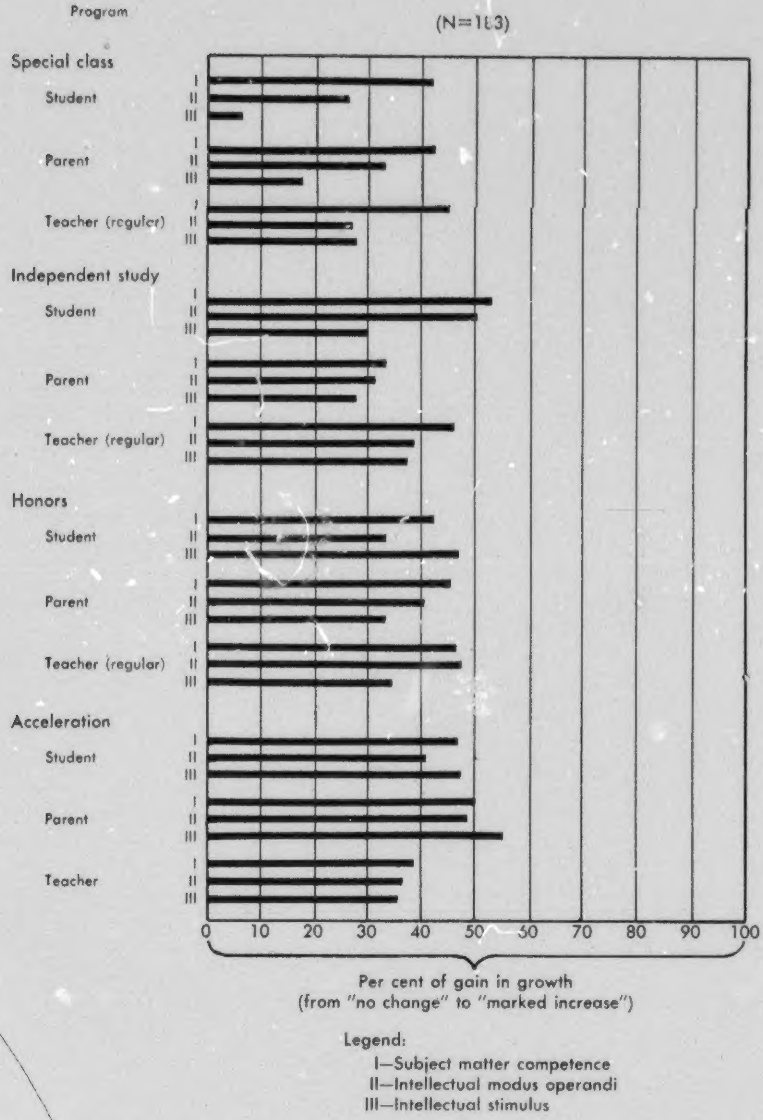
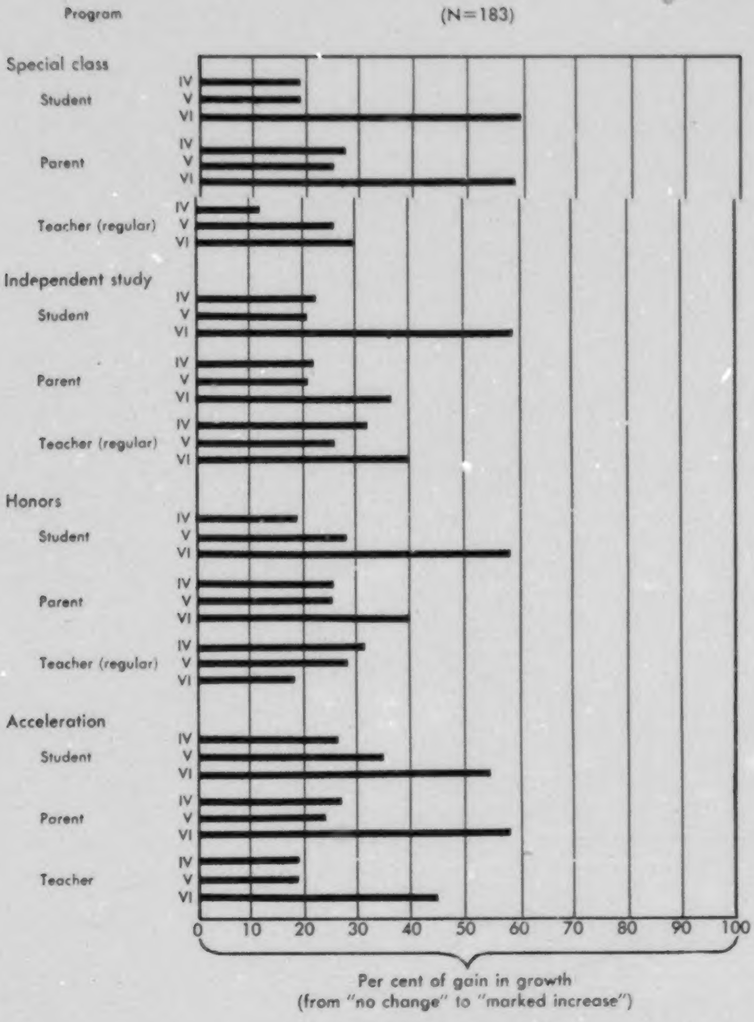


FIGURE 14. Evaluation of Student Performance in Cognitive Areas for Grades Eleven and Twelve



Legend:
IV—Relationships with teacher
V—Interpersonal relationships
VI—Self-understanding

FIGURE 15. Evaluation of Student Performance in Noncognitive Areas for Grades Eleven and Twelve

Chapter 11

TEACHER EVALUATION OF SELF AND PROGRAM

All teachers participating in the experimental program in the State Study were asked to evaluate themselves and the program with which they were working on the basis of each of the following: enthusiasm for the plan, teaching skill, knowledge of subject matter, appreciation of gifted pupils, values of programs, and problems within programs. Their evaluations present another viewpoint of those who were most directly affected by the special programs. (See Appendix P.)

The teachers were asked to make two evaluations during the year—one at the end of November and the second at the end of the year. The first evaluation was used as a basis for in-service activities as well as for a first indication of attitudes and needs. Through the use of the two evaluations, it was possible to arrive at a measure of trends in attitudes toward plans on the part of those who participate directly in making the plans. The participating teachers were not told after the first evaluation that it would be repeated nor did they have access to their first responses. Therefore, it is presumed that the assessment of trends from first to second evaluation gives a valid picture. The final evaluation was done on the assumption that when assessment of programs is involved opinion supported by experience is better than opinion alone.

In reacting to plans, teaching skills and knowledge, and appreciation of the gifted, teachers indicated their reactions according to a five-point scale. The scale ranged as follows: "marked decrease," "some decrease," "no change," "some increase," and "marked increase." Thus it would have been possible for reactions to range from extremely poor to very good on each evaluation. This fact is pointed out because on every plan the teachers had far *better than average* enthusiasm for their plan on both evaluations, rated their teaching skill as increasing because of participation, found their knowledge of subject matter increasing, and rated their appreciation of gifted pupils high. It is important, therefore, to regard the graphs that follow as representing only degrees of *increase* when it was equally possible for the graphs to have shown some elements of decrease as well. *The significant point is that all of the plans were successful on every one of the four factors as far as the teachers were concerned.*

ENTHUSIASM FOR PLAN

The highest degree of initial and final enthusiasm for the plan was shown by the teachers of first grade cluster groups. The teachers' enthusiasm had continued on the same high level. The next highest initial enthusiasm was that of fifth and sixth grade teachers of cluster groups, and no change in this position was shown on the final evaluation. The enthusiasm of all teachers continued to increase with the exception of those in enrichment plans, the regular teachers of Saturday class pupils, and the teachers in independent study. The initial high enthusiasm of teachers in the enrichment program showed the greatest decrease at first grade level. These teachers also had the poorest record of attendance at in-service meetings.

Much in-service work was done with the regular teachers of Saturday class pupils during the first few months of the study. As time went on, the in-service work became negligible, and one might speculate whether the continuation of in-service contacts might have maintained or increased the initial high enthusiasm.

Some decrease of enthusiasm was also displayed by teachers in the independent study program. The teachers in this study plan, which had been in operation for some years, were most enthusiastic at first. The downward trend was very slight in this case.

Figure 16 shows that the majority of the plans had gains in teacher enthusiasm. Enthusiasm was at a high point after two months of experience with the program and remained high in all cases, despite some losses.

TEACHING SKILLS

As Figure 17 shows, all teachers except those in the eighth grade special classes stated on the first evaluation that their teaching skill had increased as a result of participation in the study. These teachers, who reacted conservatively on the first evaluation, showed one of the two highest gains in growth.

As a contrast, the teachers of first grade cluster groups showed the most marked gain in teaching skill on the first evaluation and the greatest decline on the second. Whether the feeling of the teachers that their teaching skill had shown less increase the second time than the first was due to frustration in meeting the needs of their pupils is one question that might be asked.

If the evaluation of teaching skill reflects the effectiveness of the in-service program during the year, then one can say that the consultant help was highly beneficial. Undoubtedly other factors operated as well, an important one being individual teacher effort.

KNOWLEDGE OF SUBJECT MATTER

Knowledge of subject matter (Figure 18), which reflects both in-service training and individual effort, again showed high initial ratings in all plans and gains in all but two primary plans. All of the teachers in the study apparently had learned much themselves in their attempts to provide for the pupils. The highest final rating was made by teachers

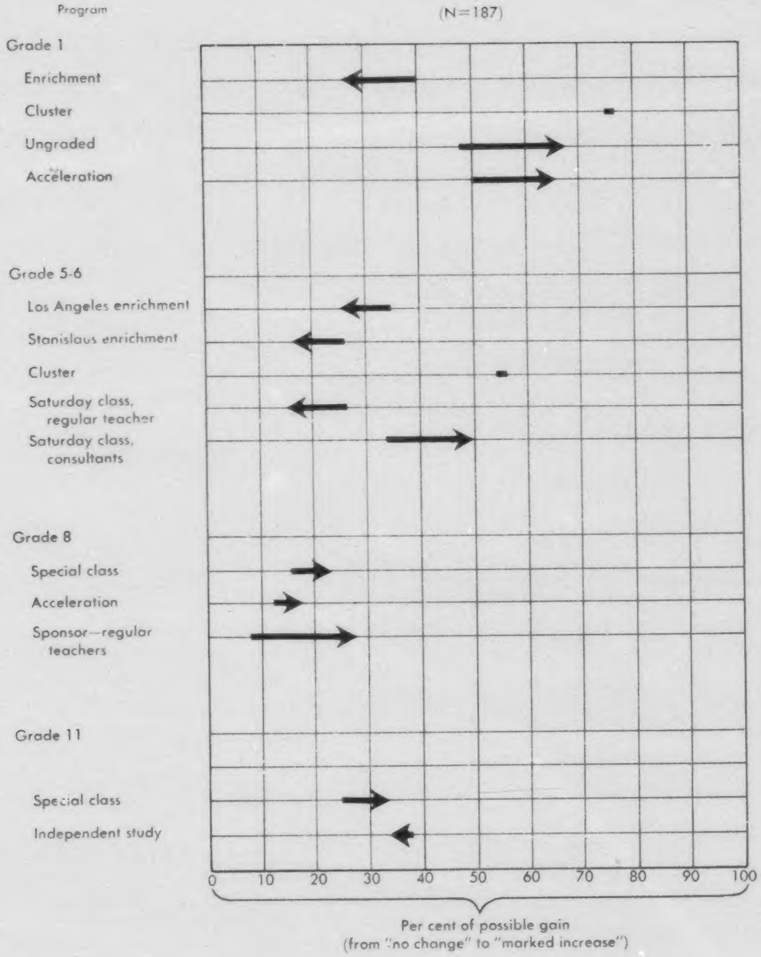


FIGURE 16. Teacher Evaluation of Self and Plan: Enthusiasm for Plan

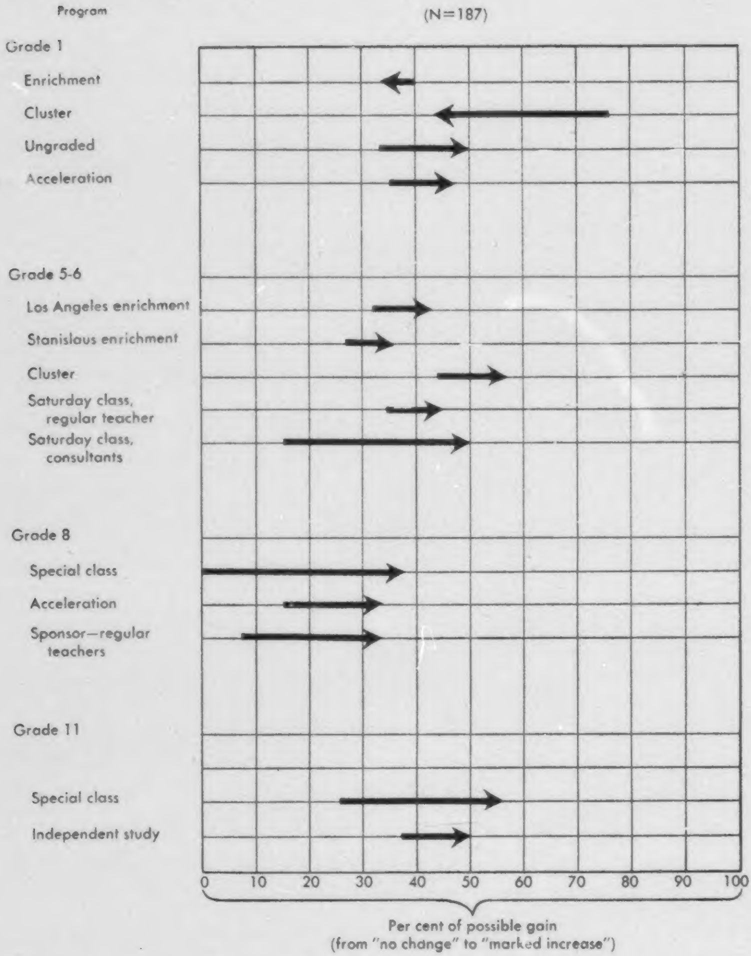


FIGURE 17. Teacher Evaluation of Self and Plan: Teaching Skill

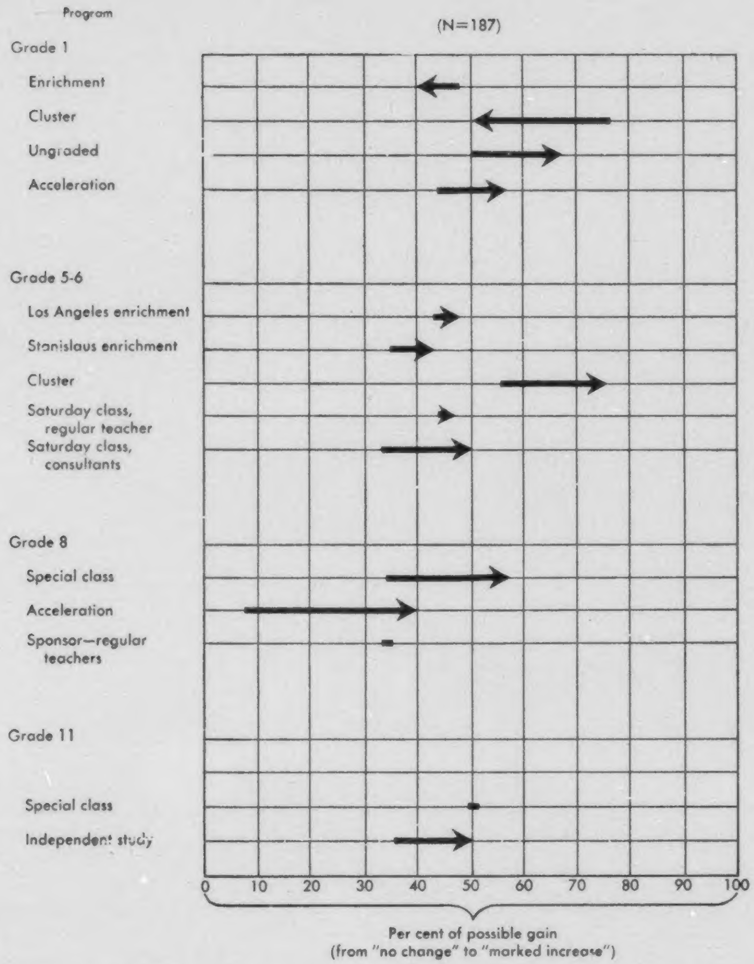


FIGURE 18. Teacher Evaluation of Self and Plan: Knowledge of Subject Matter

in fifth and sixth grade cluster groups. Again one may state that the increased knowledge of subject matter was due to a combination of in-service learning and individual study and effort.

APPRECIATION OF THE GIFTED

As Figure 19 shows, the teachers gained markedly in their appreciation of gifted pupils and their needs as a result of specific efforts and planning for the gifted. These teachers, although their final evaluation showed a slight decline, still had one of the two highest increase ratings. The greatest gains from first to last rating were made by the Saturday class consultants, who worked with the gifted, and the special class teachers at the eleventh grade level. This increase is shown graphically in Figure 19 which appears on page 114.

The high initial reaction of regular classroom teachers whose pupils worked with consultants in Saturday classes or with community sponsors was a direct reflection of efforts on the part of the State Study staff to carry on close in-service contacts and communication with all participants. The slight decline in appreciation of the gifted was a result of diminished opportunities for contacts because of work loads as the experimental year moved forward. The teacher evaluations showed clearly that if special programs are to operate successfully as adjuncts to the regular program, the regular classroom teacher must be included in the in-service activities.

VALUES OF PROGRAMS AS SEEN BY TEACHERS

Teachers in the study showed great appreciation for the in-service help and added materials given them during the experimental year. Over one-third of the total values mentioned were related to curriculum help. Another important value was increased awareness of the needs of gifted children. The teachers were of the opinion that the programs provided motivation for the gifted and for all children in the class groups. This value was mentioned 59 times. Teacher self-improvement was also an important value. Many other values, such as increased parent interest, better identification, and experts to supplement teachers, were mentioned singly. One person stated simply, "Unquestioned value." Figure 20 shows the values of programs as listed by participating teachers. (See page 115.)

The fact that the teachers found the programs of value to them through improved curriculum practices and better motivation of not only the gifted but all children in their classes shows that the in-service education extended beyond the gifted. The assumption can safely be made that, as a result of the year's work, the teachers are better teachers than they would have been without the experience and that the pupils they teach in future years will reap rich rewards from the instruction.

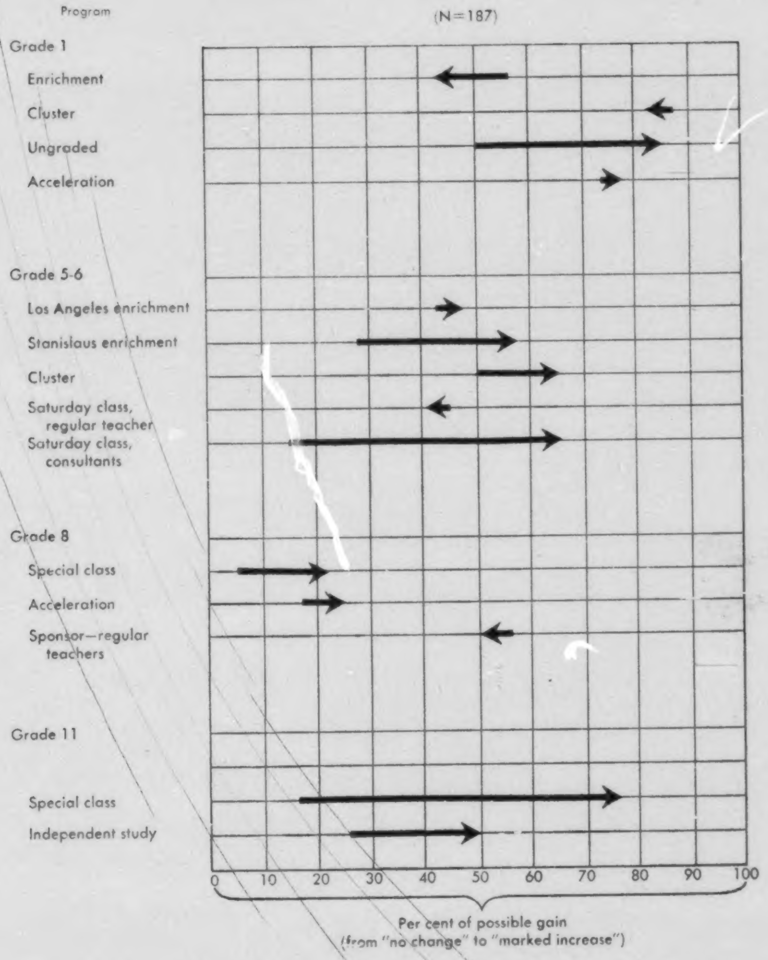


FIGURE 19. Teacher Evaluation of Self and Plan: Appreciation of the Gifted

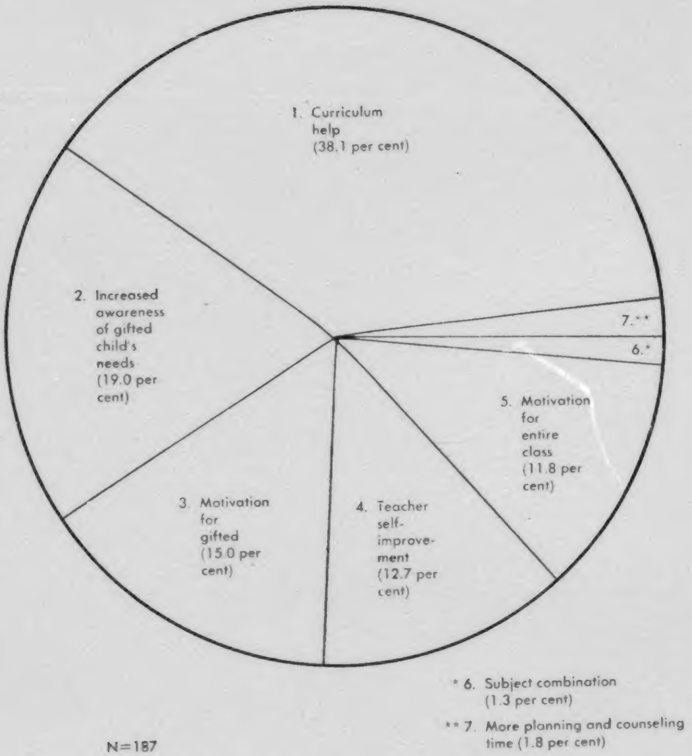


FIGURE 20. Program Values Listed by Teachers Participating in the State Study

Teachers' Comments Regarding Values Derived

The following comments by teachers illustrate the kinds of values they derived from their experiences during the experimental year.

FIRST GRADE TEACHERS' COMMENTS

A gold mine of ideas and teaching aids for years to come. Increased knowledge of many problems unique to gifted children—and some increase in ability to cope with these problems. Desire to become more proficient in all areas.

It has helped me to develop an awareness of the various gifts of gifted children: their memory span in which they "soak" up like a sponge, their acute hearing in which they hear every sound, their creative ability where they use many materials in a creative manner, and their need to think for themselves rather than have the teacher furnish most of the ideas.

Increased appreciation and understanding of these children. Has helped me to become less "fearful" of them.

I have received a wealth of information which I greatly appreciate. The program is not only more varied and interesting to the children but to the teacher as well. I feel as though I have learned a lot this year both scholastically and in understanding of all children.

FIFTH AND SIXTH GRADE TEACHERS' COMMENTS

By having the gifted identified at the beginning of the year, no delay in helping to work with them. This group caused the entire group to achieve more.

This study had motivated me in begin a better teacher as a whole. It also made me more aware of the gifted child, his problems and capabilities. Much information, many new ideas, and meetings helped me. The "in-service" was terrific. I feel two of my gifted became very good leaders because of the study.

Tremendous interest in all the students. Constantly searching for new things and methods. Opportunity to meet and get to know teachers and people with similar interest in the gifted. Greater understanding of myself, my children (gifted in particular).

EIGHTH GRADE TEACHERS' COMMENTS

There were three areas: (1) it was helpful to confer with teachers from other schools to consider common problems; (2) the extra time for preparation was invaluable for research, meeting pupil needs, and evaluation; (3) the classroom library was indispensable.

Participation in this program has made me even more aware of the limited facilities to help the gifted child. I feel that we as educators are at last headed in the right direction by doing something concrete to help these children.

ELEVENTH AND TWELFTH GRADE TEACHERS' COMMENTS

The greatest value is the realization of the actual difference in thinking, approach to problems, and flexibility of the gifted student.

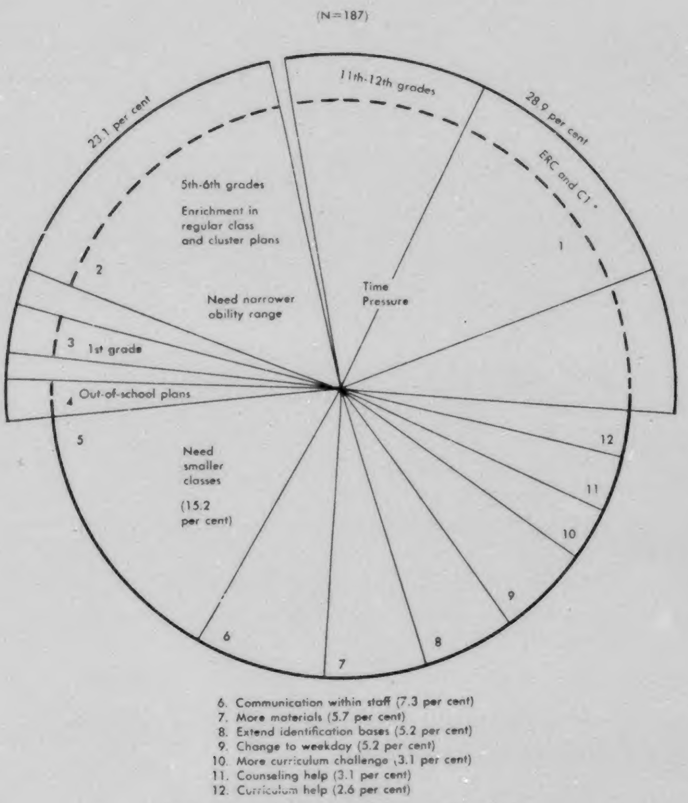
The study has forced me to evaluate my teaching—not always an enjoyable process. I see areas where improvement is needed and I can make these improvements. I appreciated some of the comments of the State people.

It has helped me more fully to appreciate the possibilities of the gifted children. It has brought realization of the need for continued scholastic advancement for the teacher.

There has been a carry-over from my study class to my other classes. My standards have been raised in all classes and the results have been amazing. I find I do a better job teaching because of this carry-over.

PROBLEMS AND NEEDS AS SEEN BY TEACHERS

Aside from the fact that the participating teachers found much of value to them and to their pupils in the various experimental programs, they found many accompanying problems. The two greatest sources of frustration were the wide ability range in certain plans, which accounted for 23.1 per cent of the total problems mentioned, and time pressures, again only in certain plans, which accounted for 28.9 per cent of all problems. It is interesting to compare the distribution of problems shown in Figure 21 with the teachers' enthusiasm for the plans shown in Figure 16. Teachers in enrichment groups at first, fifth, and sixth



* ERC and C1: Enrichment in regular class and cluster plans, fifth-sixth grades.

FIGURE 21. Program Problems and Needs Listed by Teachers Participating in the State Study

grade levels who showed some diminishing enthusiasm were in the groups which reflected the greatest number of problems as well as time pressures.

The need for smaller classes, which made up 15.2 per cent of the total problems, probably is related to the two already mentioned. Another important need is that of complete and continuous communication, within total staff groups, regarding programs.

Figure 21 shows that teachers need help in several ways to do their best work for gifted pupils. A number of their expressed problems require administrative planning and financial expenditure (narrower ability range and smaller classes). Others require both financial help and direct assistance from special personnel (problems such as those involving time pressure, communication, materials, identification, and curriculum and counseling help).

A special evaluation of problems in out-of-school programs was made to determine whether these involved any special difficulties. Evaluations were made of the Saturday class and community sponsor plans by the regular classroom teachers. A total of 30 problems were mentioned by 36 teachers. These pertained to more communication (12 times); change to weekday (10 times); narrrower ability range in own classroom (4 times), and curriculum help (4 times). These reactions make it evident that when special groups are formed, assistance should be given to the regular classroom teacher who works with the pupil for most of his time in school as well as to the person who gives the child special enrichment opportunities.

Teachers' Comments Regarding Problems Encountered

The comments that follow are expressions of typical problems encountered during the experimental year. The comments, made by teachers participating in the State Study, should be helpful in any consideration of educational planning for gifted children.

FIRST GRADE TEACHERS' COMMENTS

I feel that there should be a careful selection of teachers for these children. I personally am more concerned with the achievement of the average child and those below average and feel frustrated when dealing with the gifted.

I feel handicapped in not having information gained at summer workshop.

I do not ever have enough time!

I feel if I could have less than 38 pupils I would be able to give each child more individual attention.

At times complete frustration because I don't have three heads and ten arms. There is so much we can do, but do not have enough time.

FIFTH AND SIXTH GRADE TEACHERS' COMMENTS

Time allotment for local school district activities as well as the State Program. Interpretation of the program to educators and community members.

Many necessary materials were not available through the district, presumably due to lack of funds.

There have been many pressures—time, parents, class loads, no time provided for preparation or assembling material. I feel I have worked harder than in any other teaching year.

The most difficult problem was lack of leadership in the local school, and this brought with it many concomitant problems.

A smaller class would undoubtedly give these four gifted in my room the chance they deserve. They have always been in a large class, and thus I feel they have been neglected.

I would like less variance in IQ's. As it is, this year five gifted pupils with IQ's up to 173 are placed in the group with children of IQ's 78-79. This has made it impossible to spend time with these gifted as I feel they should be given as much time in organization of projects as the low groups.

ELEVENTH AND TWELFTH GRADE TEACHERS' COMMENTS

The plan is operating from seventh grade to twelfth. I would suggest starting it earlier—as soon as the very able pupils are identified.

I think it makes teachers aware of the fact that a great deal of additional preparation on their part is necessary to deal adequately with "honors" programs. By preparation I mean graduate study—almost continuously.

The major problem, for which the Study cannot be held guilty, is the man-killing schedule to which I have been held this year. What with meetings, conferences, and interviews added to a doubled classroom schedule of independent study, I find myself upon an ever-accelerating treadmill.

. . . Doing a college job with but 20 pupils is equivalent to at least two of my other classes. The extra time for counseling and seeing pupils about their work may seem sufficient when the hours are totaled, but this is not the actual case at all . . .

Expansion of some form of the plan throughout the whole ninth-to-twelfth program. Entirely too much of the plan as it has existed for eleventh and twelfth grade students is remedial—i.e., it demands correction of previously formed bad habits. Real rigor from the beginning of the high school curriculum should—or at least might—obviate the necessity to "shovel sand against the tide" in the last two years.

The comments and reactions of these teachers make it apparent that they have faced many difficult problems in their efforts to provide adequately for the intellectually gifted. In order to improve their teaching, they need more realistic schedules, more materials, and smaller classes than they had during the experimental year. They expressed a desire for continuous assistance and a continuous program extension throughout the school grades.

Despite the problems, the teachers stated that the year-long participation in experimental programs had been exceedingly valuable to them. They spoke of intellectual stimulation and of being better informed and better prepared for their work. In many instances the in-service activities had made them better teachers, not only for the gifted, but for all children. They appreciated extra time given to them for planning and preparation, and the extra materials which were provided for the gifted. A number of them said that although they had worked harder during the year than they ever had before, the experience had been beneficial.

It is important to plan for conditions that will enable teachers to provide for the gifted when they are outside of the stimulation of an experimental situation. The establishment of adequate provisions would be of benefit to the gifted and to all children with whom the teachers have contact. Added materials and equipment could be useful to many children and would be of value within the total educational program.

Chapter 12

PUPIL EVALUATION OF PROGRAMS

The pupils in the State Study, from the fifth grade on, were asked to react to the programs in which they had participated during the 1958-59 school year. The items to which they responded were identical to those on the parent evaluation form except for minor changes in wording. (See Appendix O.)

Nearly all the pupils, 548 out of a total of 566, responded "yes" to the question, "Has participation helped?" Only 14 responded "no," and 4 were undecided. The per cent of total "yes" replies was 95.8. The 14 "no" responses accounted for a total of 3.2 per cent.

While the programs were helpful to nearly all pupils, many of them (59.2 per cent) encountered problems during the year. The greatest number of problems (77.8 per cent) occurred at the eleventh grade level. Despite the problems, 77.7 per cent of the pupils wanted the program to continue. The highest per cent (91.9) of the pupils favoring continuance occurred at the fifth and sixth grade levels.

Figure 22 shows graphically that the pupils almost unanimously agreed that the experimental year had been helpful to them. They found that participation created problems of various kinds for them, but more than three-fourths wanted to continue in the program.

The meaning of the problems is presented in part in this chapter and in more detail in the evaluation of specific programs (Chapter 17). The incidence of problems is somewhat magnified by the pupils' reactions to elements that were not integral parts of the experimental programs. For example, a number of pupils in mathematics-physics honors courses reacted negatively to *history*, which was not part of the honors course-offering in the experimental study. The experimental honors sequence included mathematics and physics.

The responses to the question of whether the program should be continued also need clarification. Some students stated that they would not want the program to continue because they were going into a higher grade or a new school environment, and the program would not, therefore, meet their needs.

VALUES OF PROGRAMS AS SEEN BY PUPILS

Not all the pupils who replied to the items summarized in Figure 22 explained the reasons for their answers. However, 526 of them listed a total of 692 values which they had derived from their programs during the experimental year. These were arranged into five groups and are shown in Figure 23.

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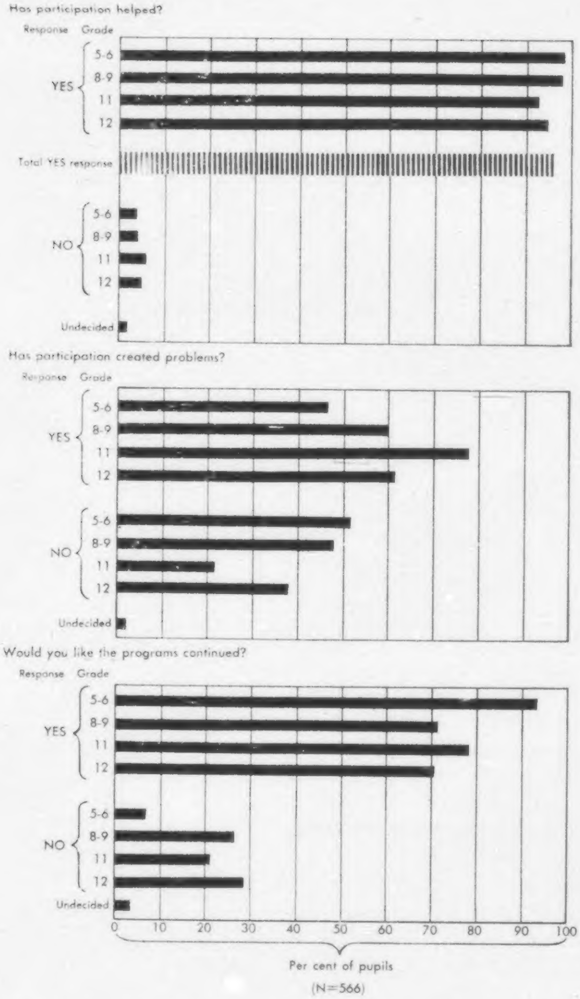


Has participation helped?

Has participation created problems?

Would you like the programs continued?

FIGURE 22. Pupil Evaluation of Programs in the State Study

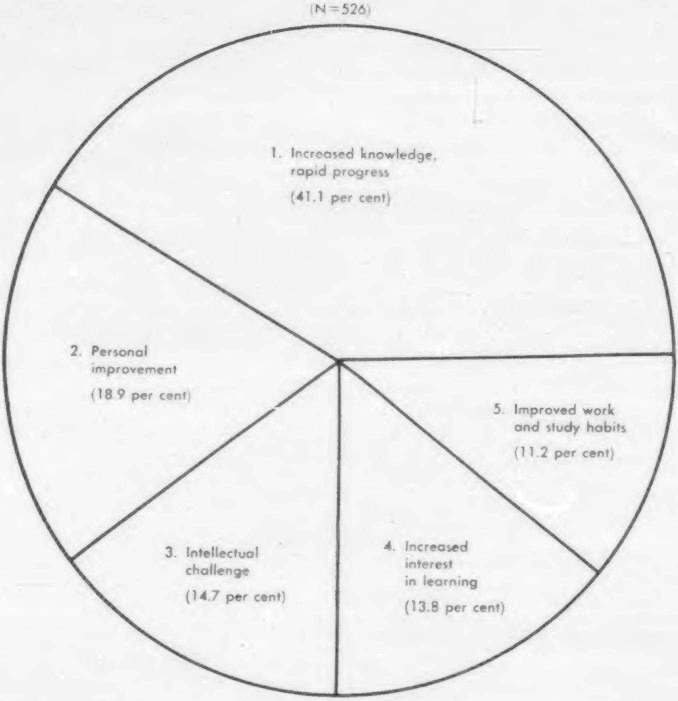


FIGURE 23. Values of Programs as Listed by Pupils in the State Study, with Per Cent of Total Listing Shown for Each Value

A total of 41.1 per cent of the values listed related to increased knowledge and rapid progress. The largest number of pupils appreciated the opportunity to learn and to progress at their own rate. The next most frequently mentioned value was that of personal improvement, which reflects an increase in self-understanding, self-esteem, and improved relationships with others as a result of identification and special programs. These two areas by themselves account for exactly 60 per cent of the values listed by the pupils.

Pupils' Comments Regarding Values of Programs

The comments that follow illustrate the reasons the pupils valued their experiences during the school year. The fact that 692 statements like these were made makes it apparent that serious consideration should be given to developing and maintaining educational programs that meet the needs of gifted pupils.

FIFTH AND SIXTH GRADES

> I like being with the kids in the special classes. They seem more friendly and better behaved than those in our regular classes.
>
> I have always been considered younger and sort of stupid, but now I have a chance to prove to myself that I am not as stupid as they say or feel. I think I have really learned something.
>
> It has helped me to judge facts and to find information; ability to work by myself; and the curiosity of learning and experimenting with new things.
>
> It has taught me many things. Normally I would not have learned this knowledge in years . . .
>
> I believe that it has been a very great help to me, since before this class was started I was bored with school work; it was too easy. This class has afforded me more advanced work—much more interest.

EIGHTH GRADE

> I believe I have grown up since last year. It is easier to overcome and understand problems. This year has helped me work and learn more than if I just "breezed" through, like other times.
>
> I have had a stupendous time in the eighth grade in school. I have learned how to work and think for myself; how to go about tackling a job and finishing it; how to see relationships between different points in history; to be able to work both math and algebra problems; and to get along with my teachers and friends while enjoying every aspect of school.
>
> I found the group I was in able to go faster than most, and this pleased me. After a year of more concentrated work than usual, I think I am a better rounded-out individual than I was before. This class enabled me to find lasting friends—something very important to me.
>
> This has been the most profitable year of schooling I have ever had. There was such a fabulous group of completely different and delightful personalities (including the teachers) that there was never a dull moment. Being in a group that can learn quickly is an advantage I dread losing. I feel it would be a wonderful experience if such a group could be continued.

ELEVENTH AND TWELFTH GRADES

> This year has been helpful to me because for the first time I was able to watch students of the highest caliber working together in a class situation. This has helped me to realize what can be done under the proper circumstances. I have also been able to analyze my own weaknesses in more accurate detail and so realize what improvements are needed . . .
>
> I feel that I have been stimulated almost to my capacity. I have been challenged and made to apply myself as never before. I have learned study skills which I am sure I will use later in my school career.

> In the first place I have gained valuable study skills. Also the subject matter of the course has added greatly to my general knowledge and I have been able to pick up a third language (the equivalent of four high school semesters) in one year. Also I have improved, I believe, in my ability to get along with people my age and my classmates. I have never gotten so much out of one single school year.
>
> In this year I have learned, above all other things, how little I actually know. In all, I think this has been the most valuable school year of my life.

It can be seen then that the pupils reacted favorably to the increased possibilities for learning, the faster pace, and the opportunity to work in an environment that was stimulating for them. In many instances too, they expressed the opinion that the year's experiences had caused them to become better persons.

PROGRAM PROBLEMS AS NOTED BY PUPILS

The pupils in all programs listed a total of 350 problems which they had encountered during the experimental year. The great majority of these problems were based upon pressures for achievement (58.2 per cent), with no other single type of problem accounting for as much as 10 per cent of the total. Problems varied from program to program and sometimes from school to school even though the schools had the same kind of program. Certain problems seemed to appear only in certain programs. These problems are discussed in more detail in the section on the evaluation of individual plans (Chapter 17).

Figure 24 shows the relative emphasis given by the total pupil group to program problems and needs.

Pupils' Comments Regarding Problems Encountered

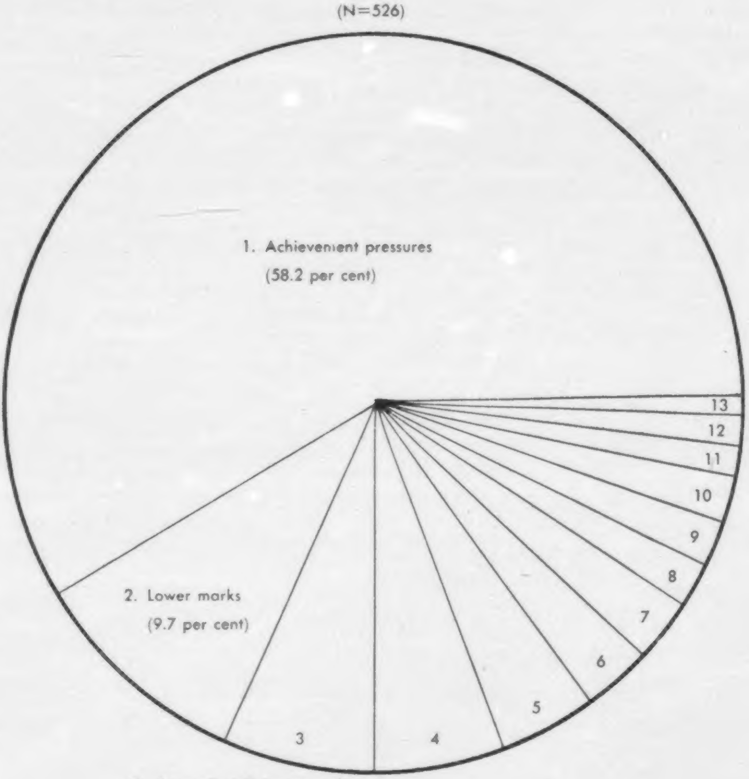
The following comments, made by pupils participating in the State Study, reflect the problems encountered by the pupils during the school year.

FIFTH AND SIXTH GRADES

> I would like to go ahead of the class so I could learn more to help me. I would like to take a P.E. class.
>
> My teacher (regular class) would not let the people in the special class be in service clubs. The children in our room would get special privileges when we were in special class.
>
> More work that would help us in high school. More subjects to be taken. Take trips in many subjects to understand more. A little more homework.
>
> Before I had never had very much homework and at first I had to study hard every night and missed activity, but now I am getting along fine.
>
> Too many things to do. Trumpet practice, yard work, notebook, and school work!

EIGHTH GRADE

I would like to get into a college which has high standards in grading. In all my being graded I have received lower grades for better work than in the other classes I had. The people in my class also raise the averages and lower grades.



3. Counseling (6.5 per cent)
4. Articulation (5.4 per cent)
5. Need for faster progress and harder work (4.2 per cent)
6. More individual research (3.1 per cent)
7. Library limitations (2.8 per cent)
8. Need more time in special group (2.0 per cent)
9. Regular class teacher attitude (2.0 per cent)
10. Schedule (2.0 per cent)
11. Loss of motivation for regular high school work (1.4 per cent)
12. Teacher attitude (1.4 per cent)
13. Transportation (.8 per cent)

FIGURE 24. Program Problems and Needs as Listed by Pupils in the State Study, with Per Cent of Total Listing Shown for Each Problem or Need

Our teachers graded terribly hard and often told us so. Also, the big excuse was for unfair grading that it said "SE" on our report cards. But did not teachers and counselors realize that "SE" or not, if we did not receive enough "A"s or "B"s or "E"s, we still would not make the Honor Organization of our school? These are the reasons why I am against continuing this program.

It will present a problem when I get to high school. Will I take algebra again half a semester or start in on geometry? I did learn how to use the slide rule, however.

ELEVENTH AND TWELFTH GRADES

There has been too much work, not giving me time for many outside activities. Each class teacher thinks that his is the one in which one should put forth his supreme effort . . .

There are many changes which should be made. The first is not with the state program itself. Rather, it begins way back in the elementary school. None of us was required to do any work until high school. Then suddenly, we find ourselves loaded down with work. Learning to work and study is as important as learning all forms of math and other things.

This question is quite difficult to answer. I feel that my knowledge has increased tremendously by associating with gifted pupils. However, the difficulties of achieving sufficiently high marks to enter college have been intensified. If grades were no factor, I would very much be in favor of continuing in a program of this kind.

Students should be given a day's absence for college finals whether or not they conflict with high school classes. The college students have this advantage, which makes the test twice as hard for the high school students. Otherwise, no change.

The central message contained in these expressions of pupils' problems and desires is the need for constant individualized planning. Every type of problem reported could be eliminated if some responsible person were assigned sufficient time to work closely with programs for gifted pupils.

Chapter 13

PARENT EVALUATION OF PROGRAMS

The State Study forms for parent and pupil evaluation (see Appendixes M and O, respectively) both listed several items in addition to those dealing with pupil performance and growth. These items, listed on the reverse side of each form, dealt with reactions to the plans in which the pupils were involved and took the form of questions.

The questions were asked to determine (1) whether the programs had been helpful; (2) whether the programs had created problems; (3) whether the programs were of value and should be continued; (4) what the values and problems were; and (5) what changes should be made.

Figure 25 shows the parents' reaction to all programs within the study, on the basis of responses to the first three questions. Most of the 645 parents of pupils in experimental programs reacted favorably to the question involving help given by the programs. Of the total group, 83.9 per cent said that the program had been helpful; only 7.1 per cent stated that the program had not been helpful; 9 per cent either were dubious or did not respond. The ratio of "yes" to "no" responses at the different grade levels was remarkably uniform, with the most favorable evaluation at the eighth grade level and the least favorable at the eleventh grade level.

In addition to being questioned regarding program helpfulness, the parents were asked whether the programs had created problems. As Figure 25 demonstrates, nearly two-thirds of the parents said no problems had occurred; approximately one-third (34.9 per cent) said there had been problems. The problems reported and the reasons for citing them are presented later in this chapter.

Altogether, 92 per cent of the parents stated that they would like the program continued; only 4.5 per cent said "no." The greatest enthusiasm for programs occurred at the first and twelfth grade levels, with the least, 86 per cent, at the eleventh grade level. Even the latter figure, however, indicates strong support. There was no adverse reaction to the continuation of programs at the twelfth grade level, and only two persons out of 125, or 1.6 per cent of the first grade pupils' parents, responded negatively to the question of whether programs should be continued. The total number of parents who wanted programs continued was 595, as compared with 29 who said "no" and 22 who were doubtful or did not respond.

The parents of the gifted children in this study were overwhelmingly in favor of the programs in which their children were involved during

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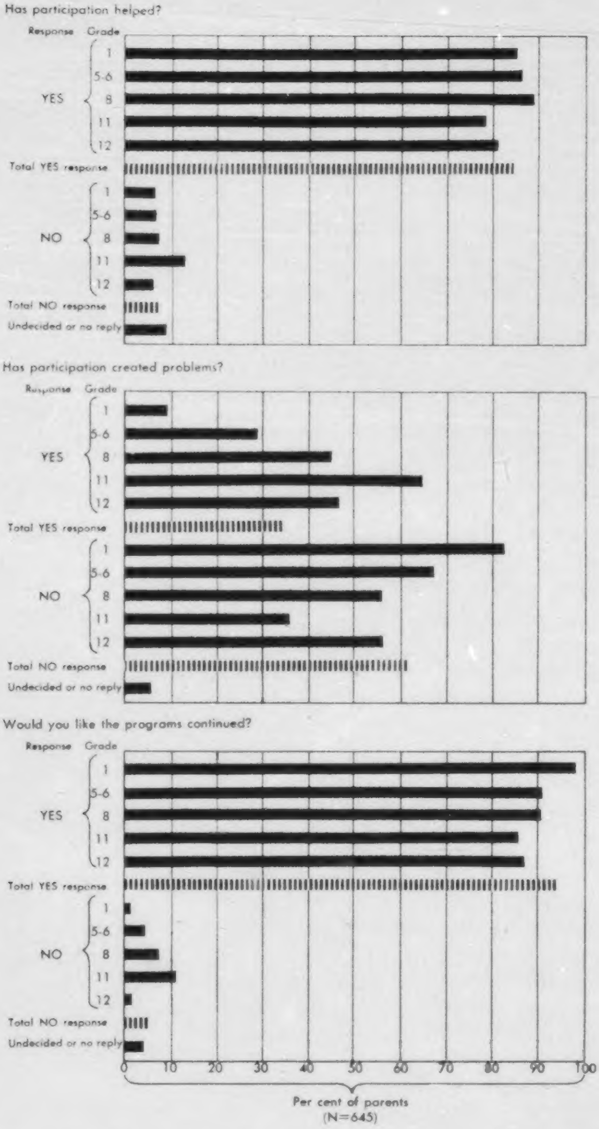

FIGURE 25. Parent Evaluation of Programs in the State Study

the 1958-59 school year. They recognized that the participation in programs had created some problems for their children; despite the problems, however, more than 90 per cent of them wanted the programs to be continued.

Parents' Comments Regarding Program Continuation

The following three comments succinctly present the views of parents who supported continuation of programs for gifted children:

> I think it would be a crime to let children with minds like these just rot in an ordinary program.
>
> . . . I would also like to ask for some help in the continuation of a special group even if the parents must do it . . .
>
> This is without question the best program which we have seen for these children. More work and emphasis should be put into this phase of our educational system. It will be tragic if this program is discontinued.

VALUES OF PROGRAMS AS SEEN BY PARENTS

Parents were asked to explain their "yes" and "no" answers to the question "Has participation in the study helped him?" Since the responses occurred mainly in five categories, they were grouped under the following headings: (1) intellectual challenge; (2) increased knowledge; (3) interest in learning; (4) improved work, study habits; and (5) personal improvement.

The greatest number of values, 28 per cent of all those mentioned by parents, related to increased interest in learning and realization of the meaning and value of education. Approximately 23 per cent of the parents found that their children were stimulated intellectually by the program, and many stated that for the first time their children were eager to go to school each day. Also 20 per cent of the parents stated that their children had developed poise, maturity, better dispositions, better relationships with others, or generally better self-understanding while they were in the program. Figure 26 shows the proportion of responses for each of the five values.

Parents' Comments Regarding Values of Programs

The quotations that follow illustrate the kinds of comments which were used in preparing Figure 26. These statements, made by parents of pupils in the State Study, present some evidence regarding the ways in which the children were helped and the kinds of personal development and intellectual stimulus that took place.

FIRST GRADE

> It has increased his interest, appreciation, and understanding of science. Specifically, it has stimulated his interest in math. . . .
>
> She was very bored with school last year, as she was wanting to learn—now she is learning and is very happy in school . . .

She has a great deal of knowledge in the sciences and in social studies and current events that is amazing to me in a first grader . . .

She has learned to co-operate and gets along well with both the teacher and the other children. Developed more fluency and expression in her reading. . . . She has learned to express her feelings openly. The study of "space" was such a challenge. It also prompted use of her library card to look up additional information.

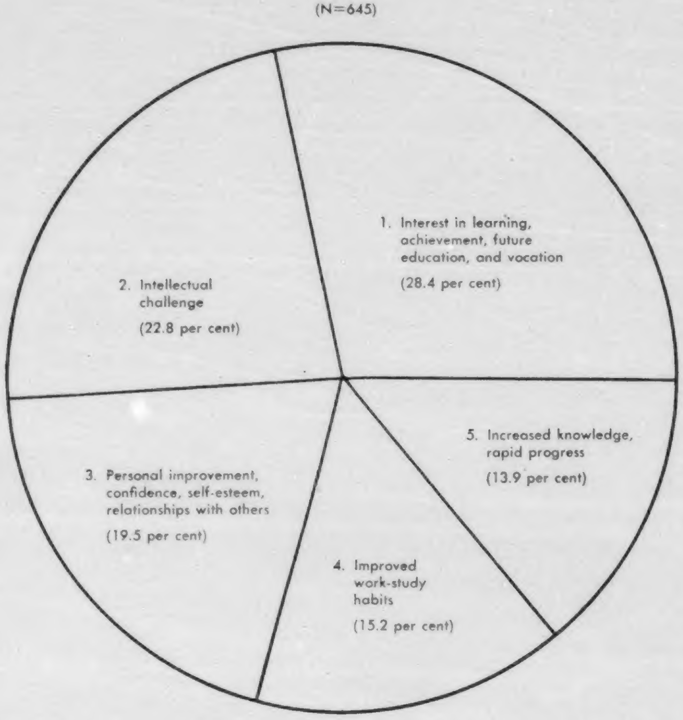

FIGURE 26. Values of Programs as Listed by Parents of Pupils in the State Study, with Per Cent of Total Listing Shown for Each Value

FIFTH AND SIXTH GRADES

I believe the study has aroused an interest in mathematics, for L. is watching an alegebra TV class. She has taken out and studied several books on the solar system. She studied a sewing book and made a little skirt—also costumes for herself and sister. The costumes were used for a play written and directed by L. She makes schedules and follows them.

Opened new vistas and perspective in regard to learning. New respect for knowledge. New respect for himself. Fanned the fires of his natural curiosity about all things.

. . . This year I have never heard the complaint that she had free time with nothing she could do.

We find a big improvement in his disposition, and for the first time in his six years in school he has looked forward to going to school. Not one day that we can remember has he indicated he disliked school. He has a lot more confidence in himself and recognizes a valuable change in himself.

It has been gratifying to see her tackle problems and not be completely frustrated when they are beyond her.

This year has seen her "come out of her shell."

It has brought the parent and child closer because she has needed more guidance in finding materials and information.

L. was beginning to accept the picture of mediocrity for herself; even the school was terribly frustrating. Identification, and no longer being told she was not bright, have had a tremendous effect on her. . .

She has been extremely stimulated by the competition and we feel her self-confidence has improved 100 per cent.

EIGHTH GRADE

The challenge of a considerably enriched program and of an ambitious gifted group of students has contributed to a much more appreciative attitude in our son toward learning and knowledge. The mutual influence of this physically and mentally very attractive group on its individual members can hardly be overestimated.

Recognition of Marjorie's ability has given her more of a sense of belonging.

For the first time in her life she has been required to work at something approaching capacity.

ELEVENTH AND TWELFTH GRADES

Intellectual benefits. Seriousness of purpose—to an intense degree. Keen ability to judge teachers' contribution. Respect for intellectual achievement. Intensification of the desire to achieve excellence (always present but not always operative). Desire for perfection. Respect for knowledge and continued quest for it.

Stimulated his interest in English, general literature, American literature, and history, and opened his eyes to the simultaneous development of our people, country, and culture. Has given him confidence in and opportunity to express some of his ideas.

She has learned to think analytically and critically—that is, her education has gained depth and dimensions that should be of lasting benefit to her. She has gained personal insights into assets and liabilities. She has gained a higher degree of social maturity than would have been achieved otherwise.

> We have seen a general awakening, a desire for improvement and information, better study habits (self-imposed). He is showing great interest in reading, especially cultural, and is acquiring a library of authors including Spinoza, Kant, Nietzche, Santayana. Until last year he read only sports books and magazines. We feel that this program has been most stimulating and that T. has matured with it. We, as parents, could not be more enthusiastic about the program and the results.

> She has come to the realization that she can do anything or become anything she wishes.

In summary, the 645 parents who evaluated the experimental programs found much of value in them. They listed and described 690 different benefits which their children had derived from participation in the programs. The fact that the values were described on a spontaneous basis lends merit to the ideas contained in them. The total number of values described indicates the enthusiastic support of the parent group.

PROGRAM PROBLEMS AS IDENTIFIED BY PARENTS

When asked to state whether any problems had occurred within the experimental programs, the parents of pupils in the State Study cited a total of 393 problems or needs. This number was just over half the number of program values that had been cited by the parents. By far the greatest number of problems reported related to pressures for achievement. Whether these problems involved true pressure or were the products of a change from making little effort to meeting more realistic requirements is open to speculation when one reads the comments of the parents on this problematical factor. Other major problems related to the belief of parents whose children were in enrichment programs that their children needed more challenge (12.5 per cent); to the problem of lower marks than customary for those in special classes (9.9 per cent); and to the need for more effective home-school communication (7.1 per cent).

Figure 27 presents the problems and needs listed by the parents and shows the relative emphasis given to each type.

Parents' Comments Regarding Problems Encountered

The kinds of comments made by the parents and summarized in Figure 27 are illustrated by the following quotations:

FIRST GRADE

> More information as to what progress we can expect from this program as compared to the regular program carried on in the rest of the district. More meetings of the type held early in the year.

> That the children are challenged more and their capabilities brought out more. Not pushed beyond their limit but at least are using what God gave them.

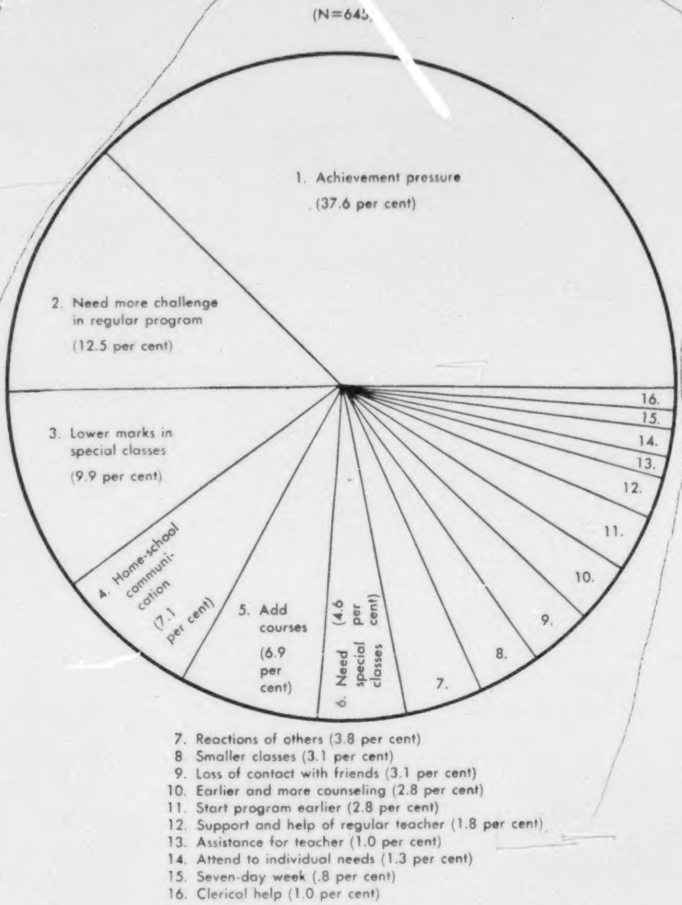

FIGURE 27. Program Problems and Needs as Listed by Parents of Pupils in the State Study, with Per Cent of Total Listing Shown for Each problem or Need

Possibly something more concrete for gifted children in the elementary grades—for example, a foreign language.

FIFTH AND SIXTH GRADES

Regular teachers would not allow the pupils (in special group) to hold office in school service club, or other club, in the beginning of class. Other mothers found the situation a little difficult to accept.

We feel he has had too much homework. It has put some strain upon him because, as a country boy, he has animals to care for and other work. Most of this work is his pleasure to do and he chooses it. He also has his music to practice and some time is needed for just relaxation.

She has mentioned several times that she has much work but is always eager to get to school and get the work done to her satisfaction.

EIGHTH GRADE

The problems created were mainly in the field of keeping up with the average speed and reception of studies in the group. While in our individual case involving often some extra hours of work, this, in effect, was considered a challenge and our son never once complained that the work was excessive. On the contrary, he sometimes complained that some of the work, *not in special class,* proceeded at too low a speed for his taste.

Together with French lessons on Saturday, piano lessons on Tuesday, and Russian lessons on Monday and Wednesday, the program has given enough work to create occasional (though not serious) difficulties in scheduling her time.

The grades are not important, but they do affect getting into college (at least from the ninth grade on). If this is true, they may have the effect of screening these children out of college.

HIGH SCHOOL

Until he entered the State Study class, S. was not accustomed to doing much studying and received fairly good grades. This year has been difficult for him as he has had to improve his study habits to a great extent, and it is still an uphill battle.

He came ill prepared in background and study habits for the caliber of work the teacher expected. The competition for good grades is much greater, thereby creating pressures.

It is tough when a "so-called" gifted child changes to this group but barely makes California Scholarship Federation while children not in the group easily do.

There is still some stigma attached to being an "egghead."

Many of the problems mentioned arose because of the failure of home and school to communicate regarding the total schedule of the gifted child. A number of others arose because of the need to evaluate the pupil realistically in relation to his performance. The fact that 393 problems and needs were listed points out the necessity for constant and continuous work on the part of school personnel to ensure proper schedules and adequate educational programs for the gifted.

Chapter 14

REACTIONS TO SPECIFIC PROGRAMS BY PUPILS, PARENTS, AND TEACHERS

The evaluations which were made by pupils, parents, and teachers concerning the different programs for the gifted were grouped by grade level and by relatedness of programs in order to identify and emphasize any special values, problems, and needs to be found in certain programs. It is possible, then, to examine Table 42 for several types of information: (1) the relative proportion of values as opposed to problems and needs; (2) the kinds of assistance needed in specific programs in order to meet expressed problems and needs; and (3) unique problems, such as those involving lower marks or those relating to schedules—problems that appear only in certain programs.

The problems expressed by pupils relative to achievement pressures indicate the need for careful study and assessment of programs. They indicate also a need to examine program content, to evaluate problems of homework, and to plan for realistic scheduling. The feeling of pressure may show also the need for constant faculty evaluation not only of these stated problems but also of the quality of educational offerings.

Table 43 shows the values, problems, and needs identified by the parents of the pupils in the State Study. When one examines this table, consideration should be given to the problems identified and to the implications of the needs reported by the parents of pupils in the different grade levels and types of programs. In some instances it appeared that parents wanted programs changed entirely; in others, that they wanted additions made to existing offerings. The problems and needs listed by the parents in each group indicate some of the program shortcomings visualized by them.

Here again, it is evident that certain problems are unique. The problem involving the "seven-day week" was found only in the Saturday class plan. The problem relating to lower marks in special classes was one that was encountered particularly in high school special classes. The need for home-school communication was identified in several plans and at several grade levels.

The importance of adequate support for programs, consistent planning, resource personnel, and reasonable loads for teachers is demonstrated in Table 44, which summarizes the teachers' evaluations of the programs in the State Study. According to the teachers' reports, the programs were of benefit in many ways. The teachers also reported that there were a number of problems that caused difficulties and frustrations. When the problems and needs presented in Table 44 are closely examined, the kinds of assistance which the teachers deemed necessary in order that they might work well with their gifted pupils are clearly apparent.

TABLE 42

Values, Problems, and Needs Listed by Pupils in Their Evaluations of Programs in the State Study

Fifth and sixth grade pupils in enrichment and cluster programs (N = 132)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Increased knowledge, rapid progress	80	Achievement pressures	45
Interest in learning, achievement, future education, vocation	23	Need faster progress, harder work	10
Personal improvement, (confidence, self-esteem, relationships with others)	14	More individual research	8
Improved work, study habits	12		
Intellectual challenge	10		
Total	139		63

Fifth and sixth grade pupils in special programs (N = 64)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Increased knowledge, rapid progress	49	Achievement pressures	24
Intellectual challenge	15	Regular class teacher attitude	7
Interest in learning, achievement, future education, vocation	14	More time in special group	7
Personal improvement, (confidence, self-esteem, relationships with others)	11	Need faster progress, harder work	5
Improved work, study habits	6	Library limitations	3
		More individual research	3
Total	95		49

TABLE 42—Continued

Values, Problems, and Needs Listed by Pupils in Their Evaluations of Programs in the State Study

Eighth grade pupils in special class and acceleration programs (N = 87)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Increased knowledge, rapid progress	53	Achievement pressures	38
Personal improvement, (confidence, self-esteem, relationships with others)	30	Lower marks in special class	10
Intellectual challenge	27	Teacher attitude	2
Improved work, study habits	16		
Interest in learning, achievement, future education, vocation	8		
Total	134		50

Pupils in out-of-school programs (N = 60)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Increased knowledge, rapid progress	36	Achievement pressures	13
Interest in learning, achievement, future education, vocation	9	Library limitations	7
Personal improvement, (confidence, self-esteem, relationships with others)	5	Schedule	7
Improved work, study habits	3		
Intellectual challenge	3		
Total	56		27

TABLE 42—Concluded

Values, Problems, and Needs Listed by Pupils in Their Evaluations of Programs in the State Study

High school students in honors programs and special classes (N = 106)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Personal improvement, (confidence, self-esteem, relationships with others)	57	Achievement pressures	67
		Lower marks in special class	24
Increased knowledge, rapid progress	52	Counseling	19
Intellectual challenge	41	Co-ordination of assignment	13
Improved work, study habits	33	Teacher attitude	3
Interest in learning, achievement, future education, vocation	23		
Total	206		126

Students accelerated to junior colleges and the University of California, Los Angeles (N = 46)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Interest in learning, achievement, future education, vocation	19	Achievement pressures	17
Increased knowledge, rapid progress	15	Articulation	6
Personal improvement, (confidence, self-esteem, relationships with others)	14	Loss of motivation for high school work	5
		Counseling	4
Improved work, study habits	8	Transportation	3
Intellectual challenge	6		
Total	62		35

TABLE 43

Values, Problems, and Needs Listed by Parents in Their Evaluations of Programs in the State Study

Parents of pupils in first grade programs (N = 123)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Interest in learning, achievement, future education, vocation	42	Home-school communication	19
Intellectural challenge	39	More challenge within regular program	16
Personal improvement (confidence, self-esteem, relationships with others)	20	Added courses, language and the like	11
Increased knowledge, rapid progress	19	Special classes	9
		Achievement pressures	5
Improved work, study habits	6	Smaller classes	3
Total	126		63

Parents of fifth and sixth grade pupils in enrichment and cluster programs (N = 127)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
		Achievement pressures	20
Interest in learning, achievement, future education, vocation	36	Added courses	11
Intellectual challenge	29	Home-school communication	10
		Need for more challenge	9
Personal improvement (confidence, self-esteem, relationships with others)	23	Special Classes	9
Improve work, study habits	15	Questions or reactions of others (pupils, teachers)	6
Increased knowledge, rapid progress	15	Smaller classes	5
		Assistance for teachers	4
Total	118		74

TABLE 43—Continued

Values, Problems, and Needs Listed by Parents in Their Evaluations of Programs in the State Study

Parents of fifth and sixth grade pupils in special programs (N = 51)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Interest in learning, achievement, future education, vocation	22	Achievement pressures	7
Intellectual challenge	20	Support and help of regular teachers	7
Personal improvement, (confidence, self-esteem, relationships with others)	12	Smaller classes	4
Increased knowledge, rapid progress	11	Clerical help	4
Improved work, study habits	9		
Total	74		22

Parents of eighth grade pupils in special class and acceleration program (N = 81)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Interest in learning, achievement, future education, vocation	32	Achievement pressures	34
Improved work, study habits	21	More challenge within regular programs	17
Intellectual challenge	20	Lower marks in special classes	9
Personal improvement (confidence, self-esteem, relationships with others)	16	Loss of contact with friends	7
Increased knowledge, rapid progress	12	More attention to individual needs	5
Total	101		72

TABLE 43—Continued

Values, Problems, and Needs Listed by Parents in Their Evaluations of Programs in the State Study

Parents of pupils in out-of-school programs ($N = 58$)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Interest in learning, achievement, future education, vocation	22	Achievement pressures	15
		Questions or reactions of others	5
Personal improvement (confidence, self-esteem, relationships with others)	21	Seven-day week	3
Increased knowledge, rapid progress	17		
Intellectual challenge	7		
Improved work, study habits	7		
Totals	74		23

Parents of high school students in honors programs and special classes ($N = 126$)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Intellectual challenge	34	Achievement pressures	55
Improved work, study habits	34	Lower marks in special class	30
Interest in learning, achievement, future education, vocation	28	More and earlier counseling	11
		Start program in early grades	11
Personal improvement (confidence, self-esteem, relationships with others)	25	Better home-school communication	9
Increased knowledge, rapid progress	14	Added courses, language, and the like	5
		More challenge in regular classes	3
Total	135		124

TABLE 43—Concluded

Values, Problems, and Needs Listed by Parents in Their Evaluations of Programs in the State Study

Parents of students accelerated to junior colleges and to University of California, Los Angeles (N = 45)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Personal improvement (confidence, self-esteem, relationships with others)	18	Achievement pressures	12
Interest in learning, achievement, future education, vocation	14	Loss of contact with friends	5
Improved work, study habits	13	Questions and reactions of others (pupils, teachers)	4
Intellectual challenge	9	More challenge within regular program	4
Increased knowledge, rapid progress	8		
Total	62		25

(See next page for Table 44.)

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TABLE 44

Values, Problems, and Needs Listed by Teachers in Their Evaluations of Programs in the State Study

Teachers of pupils in first grade programs (N = 35)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Curriculum help through consultants (in-service, summer workshop, new ideas, demonstrations, and the like)	29	Time pressures on teachers (work loads, meetings, yard duties, not enough time to meet needs of gifted, and so on)	12
Teacher appreciation of needs of gifted	20	Smaller classes, more space	11
Motivation for entire class	15	More curriculum challenge	6
Motivation for gifted individual progress, challenge	9	Narrower ability range in group	6
Teacher improvement	7		
Better identification, evaluation	2	Counselors to work with identification, interpretation of program to parents, other teachers	6
Increased parent interest	1		
Total	83		41

Teachers of pupils in fifth and sixth grade special groups (N = 3)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Motivation for gifted children, challenge, confidence	2	Communication within staff	2
Teacher improvement	2	Equipment and space	1
		Curriculum and clerical help	1
		Time pressures	1
Total	4		5

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TABLE 44—Continued

Values, Problems, and Needs Listed by Teachers in Their Evaluations of Programs in the State Study

Teachers of pupils in fifth and sixth grade programs (N = 47)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Curriculum help through consultants (in-service, summer workshops, and the like)	46	Narrower ability range	34
		Time pressure	23
Teacher appreciation of gifted children needs	13	Smaller classes	12
Motivation for entire class	11	More books, materials	6
Motivation for gifted, individual progress, challenge	11		
Teacher improvement	8		
Better identification, evaluation	2		
Total	91		75

Teachers of pupils in out-of-school programs (N = 30 regular, 6 special)

Program values	Number of times mentioned		Program problems and needs	Number of times mentioned	
	Regular teacher	Special teacher		Regular teacher	Special teacher
			More communication	11	1
Teacher appreciation of needs of gifted children	15	3	Narrower ability range	4	
Teacher improvement	11	4	Curriculum help (how to help gifted, materials)	3	1
Motivation for gifted individual progress, challenge	9	4	Change to weekday, missed Saturday activities	3	6
More time, new fields of interest, recognition for gifted	3		Sponsor should work with more than one child	2	
			Change offerings	2	
Motivation for entire class	2				
			Time pressures	1	1
Expert to supplement teacher knowledge	2		Smaller classes	1	
"Unquestioned value"	1		Start at first grade	1	
Homogeneous grouping	1		Meet oftener		1
			More work space		1
Totals	44	11		28	11

TABLE 44—Concluded

Values, Problems, and Needs Listed by Teachers in Their Evaluations of Programs in the State Study

Teachers of pupils in eighth grade programs (N = 22)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Curriculum help, extra preparation, time, added materials, in-service	9	Extend bases for pupil evaluation and selection; include teacher evaluation, pupil background, readiness, and the like	10
Motivation for gifted, individual progress, challenge	5		
Teacher appreciation of needs of gifted	3	Competitiveness of students	4
Teacher improvement	2	Time pressures	1
Two-hour class	1	Large classes	1
		Lack of materials	1
Total	20		17

Teachers of students in high school programs (N = 19)

Program values	Number of times mentioned	Program problems and needs	Number of times mentioned
Teacher improvement	13	Time pressures (work load; needs for counseling, time for preparation; and the like)	16
Motivation for gifted, individual progress, challenge	8		
Teacher preparation of need of gifted	6	Smaller classes	4
		Materials	3
Extra time for counseling, planning	4	Earlier start in grades	2
Subject combination	3		
Total	34		25

Chapter 15

EVALUATION OF SOCIAL RELATIONSHIPS AND EMOTIONAL MATURITY

One of the questions frequently asked concerning special provisions for gifted pupils is whether such provisions have a deleterious effect on social relations. Some persons fear that special provisions within the regular classroom whereby the gifted child may have special books or materials or activities will have the effect of singling the gifted child out and creating resentment on the part of his classmates. This fear becomes more pronounced when special planning results in special groupings, where the child may be in a special class during the entire day, in an interest group for a morning or afternoon each week, or in a Saturday class. It is important, therefore, in an assessment of various types of programs to determine whether any type of program has an undesirable effect on the children who participate.

Friendship choices were used as a means for evaluating the effect of various programs. (See Appendix Q.) After the children were identified for the experimental and control groups at the first, fifth, and sixth grade levels, the teachers asked all of the children in their classes for three friendship choices listed in order of preference. This was done first in the spring of 1958 when the children were in kindergarten and in the fourth and fifth grades and again in the spring of 1959, close to the end of the experimental year when the children were in the first, fifth, and sixth grades. If the children were in part-time special groups during the experimental year, choices were made in both the regular classroom and in the special group.

Friendship choices made before the experimental year and at the end of the year were compiled for 343 gifted pupils. The data were analyzed for both 1958 and 1959 to determine the effects within each type of plan (see Table 45) and to assess the effects by total grade level.

The sign test suggested by Dixon and Mood[1] was used to evaluate the data. The evaluation revealed that fears that special planning penalizes the gifted child socially are unfounded. In no case did groups in experimental programs show a loss in friendship choices. Table 45 shows the results of the sociometric evaluation. The following results may be noted:

1. Children in experimental programs at the first grade level showed significant gains in friendship choices. Of 90 first grade children

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[1] Allen Edwards, *Statistical Methods for the Behavioral Sciences*. New York: Rinehart & Co., 1954, p. 288.

in experimental programs, 60 were chosen more the second time; only 20 had fewer choices. On the basis of chance, the positive and negative choices should be evenly distributed. The positive difference is highly significant.

2. Children in first grade control groups who also were identified as gifted but had no special treatment beyond identification showed no change in friendship status, either negative or positive.
3. Fifth and sixth grade pupils who attended Saturday classes showed significant gains in social status within their regular classrooms.
4. The total experimental group of 191 fifth and sixth grade children showed highly significant gains in social status on the basis of responses by their peers in regular classroom situations.
5. Children in special groups showed no significant changes in social status from regular to special class ratings.
6. The fifth and sixth grade children in the control group showed no significant change in social status.

The assessment of change for pupils within their special interest group or special class actually is not warranted even though it is indicated.

TABLE 45

Summary of Data Concerning Friendship Choices Made by Pupils in the State Study, by Plan and Grade Level

Plan	Grade level	Number of pupils	Positive changes	Negative changes	Number of pupils	z	P
Experimental	1st	90	60	20	10	3.98	**
Control	1st	49	22	23	4	0.0	
Cluster	5th-6th	55	29	20	6	1.08	
Saturday class (regular)	5th-6th	32	22	7	3	2.47	*
Part-time interest (regular class)	5th-6th	31	15	11	5	.54	
Enrichment in regular class	5th-6th	73	39	29	5	1.05	
Total		191	105	67	19	2.68	**
Special class[1]	5th-6th	13	6	7	0	—.56	
Part-time interest	5th-6th	31	12	16	3	—.90	
Total		44	18	23	3	—.90	
Control	5th-6th	47	23	20	4	.29	

* Significant at 5 per cent level.
** Significant at 1 per cent level.
[1] Data available for only the number reported here.

Data are presented because of the possibility of questions regarding completeness. The special groups ranged in size downward to a total of 10, which would automatically depress scores from 1958 to 1959 if comparisons were made with regular classroom groups, which average 30 or more. Undoubtedly, the fact that the groups are made up only of gifted children also makes comparison to a regular classroom group highly questionable.

The obvious conclusion from the friendship choice data is that special planning does not affect the gifted child adversely whether he remains in the regular classroom or takes part in a special plan. His regular classmates do not regard him as a less desirable friend because special arrangements are made for him. On the contrary, the groups in all the experimental plans seemed to have benefited socially during the 1958-59 school year.

CALIFORNIA PSYCHOLOGICAL INVENTORY

At the junior and senior high school levels, the *California Psychological Inventory* was used to assess the effects of programs on total pupil adjustment. The inventory was used before and after the 1958-59 year with experimental and control groups of gifted pupils.

The *California Psychological Inventory* [2] consists of 18 scales related to those characteristics considered important to social living and social interaction. It is designed primarily for use with "normal" subjects.

The scales are grouped into the following broad categories or classes of personality characteristics:

I. Measures of poise, ascendance, and self assurance
II. Measures of socialization, maturity, and responsibility
III. Measures of achievement potential and intellectual efficiency
IV. Measures of intellectual and interest modes

The scales in each category measure a number of personality attributes. An individual who scores high in Category II, for example, would be one to whom the following characteristics might be ascribed—alert to ethical and moral issues, planful, responsible, thorough, resourceful, efficient, conscientious, clear thinking, possessing broad and varied interests. The person with high scores in Category III would be seen as efficient, sincere, valuing intellectual activity, self-reliant, planful, thorough, and resourceful. The high scorer in all categories is one who may be described on a general basis as mature and personally well integrated.

In the State Study, the *California Psychological Inventory* performed two functions: (1) It gave an initial measure of the personal and social maturity of gifted pupils in the junior and senior high school and an opportunity to compare them to various population groups; and (2) it furnished comparative data on the adjustment of gifted pupils in relation to control pupils at the termination of a year in special programs.

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[2] *Manual, California Psychological Inventory.* Palo Alto: Consulting Psychologists Press, Inc., 1957, p. 7.

COMPARISON OF EIGHTH GRADE BOYS TO GENERAL POPULATION AND TO HIGH SCHOOL GIFTED STUDENTS

The *California Psychological Inventory* [3] is designed primarily for use with high school and adult populations. It was used with eighth grade pupils in the present study, however, on the assumption that their total maturity made it a valid instrument. Evidence appeared immediately, when the *Inventory* results were analyzed that the pupils identified through the use of an individual intelligence test had personal and social characteristics in keeping with their measured intelligence test performance and achievement test ratings. As shown on the first test, which was given when the eighth grade pupils were finishing their seventh year, the high level of performance on the 18 scales indicated a level of maturity closely comparable to that of the composite high school and adult populations. The gifted eighth grade pupils had an adjustment pattern that showed significantly favorable differences over that of random eighth grade pupils on every scale. In comparison to each other, the gifted and random populations were completely different groups. The marked differences between gifted eighth grade pupils when compared with random eighth grade pupils and with the general population are shown in Figure 28.[4]

The remarkably early maturity of gifted eighth grade pupils is shown in Figure 29, which presents a comparison of the eighth grade boys with high school gifted students and the general adult population. The three groups were highly similar. Although the high school gifted scored significantly beyond the eighth grade pupils on a number of scales as might be expected, the eighth grade pupils had significantly higher scores on three scales. The results of this test, therefore, showed that members of the gifted eighth grade group possessed social and emotional maturity far beyond that normally expected for this age and that they compared closely to boys who were four or more years older than they. (See page 152 for Figure 29.)

COMPARISON OF EIGHTH GRADE BOYS TO BUSINESS EXECUTIVES

Further examination of the maturity of gifted eighth grade boys was provided by comparing them with a group of business executives. (See

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[3] Permission to use an adaptation of the California Psychological Inventory Profile Form was granted by the Consulting Psychologists Press, Inc., Palo Alto, California. The 18 scores in the Inventory and the symbols representing them are as follows: dominance (Do); capacity for status (Cs); sociability (Sy); social presence (Sp); self-acceptance (Sa); sense of well-being (Wb); responsibility (Re); socialialization (So); self-control (Sc); tolerance (To); good impression (Gi); communality (Cm); achievement via conformance (Ac); achievement via independence (Ai); intellectual efficiency (Ie); psychological-mindedness (Py); flexibility (Fx); femininity (Fe). These score symbols are used consistently in Figures 28 through 36.

[4] Figures 28 through 36 were reproduced by permission from Harrison C. Gough, *Manual for The California Psychological Inventory*. Palo Alto, California: Consulting Psychologists Press, Inc.

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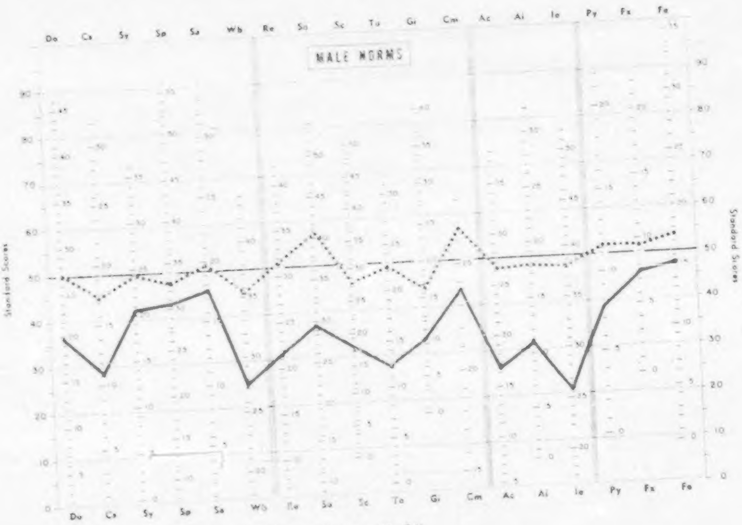

FIGURE 28. A Comparison of the California Psychological Inventory Profiles of Gifted Eighth Grade Boys and Randomly Selected Eighth Grade Boys

Figure 30.) While the pattern of total maturity was higher for the business executives, the gifted eighth grade pupils were higher in socialization, responsibility, flexibility, and communality. High scorers on the latter scale are seen as dependable, moderate, tactful, reliable, sincere, patient, steady, and realistic; as being honest and conscientious; and as having common sense and good judgment. The general pattern for both groups had many points of similarity. (See page 153.)

COMPARISON OF EIGHTH GRADE GIRLS TO GENERAL POPULATION AND HIGH SCHOOL GIFTED STUDENTS

Eighth grade gifted girls displayed much the same high maturity pattern as that of eighth grade boys when compared to randomly selected eighth grade girls. The levels of maturity of the gifted and random groups were markedly dissimilar. On 16 of the 18 scales, highly significant differences in favor of the gifted were found. One additional scale also showed a significant difference in favor of the gifted girls. The

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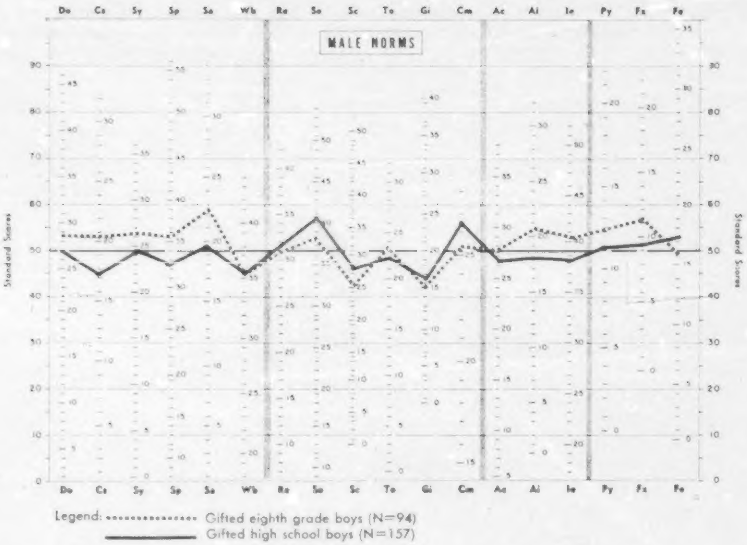

FIGURE 29. A Comparison of the California Psychological Inventory Profiles of Gifted Eighth Grade Boys and Gifted High School Boys

only scale in which no significant difference appeared was femininity. Figure 31 shows the contrast between the gifted eighth grade girls and their contemporaries and demonstrates not only the difference between the gifted and their age mates but also the highly similar maturity patterns of the eighth grade gifted group and the composite norm population. (See page 154.)

Comparisons of the girls and members of specific occupational groups were not made as they were for the boys because of a lack of suitable norm data.

The gifted eighth grade girls and high school gifted girls can be described as almost identical populations from the standpoint of general maturity. The extremely close similarity of the two groups is portrayed in Figure 32. (See page 155.)

Differences between eighth grade and high school gifted girls on 11 of the 18 CPI scales were nonsignificant. The four scales that yielded highly significant differences in favor of the gifted high school girls

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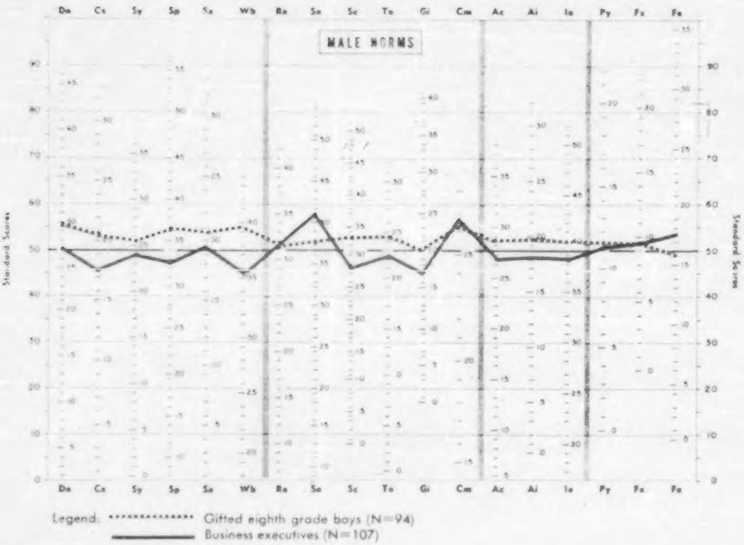

FIGURE 30. A Comparison of the California Psychological Inventory Profiles of Gifted Eighth Grade Boys and Business Executives

were capacity for status, social presence, self-acceptance, and achievement via independence. The dominance and intellectual efficiency scales also favored the high school gifted students significantly, while a significant difference in favor of the eighth grade pupils was found on sociability.

COMPARISONS OF HIGH SCHOOL GIFTED BOYS WITH COMPOSITE NORM POPULATION AND WITH COLLEGE NORMS

While the high school gifted students closely resembled the total adult norm group in personal-social maturity, they differed greatly from the average high school population. On 14 of the 18 scales there were highly significant differences in favor of the gifted, and one additional scale showed a significant difference. A much closer relationship occurred between the eighth grade and high school gifted boys than between the high school norm population and the high school gifted.

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This suggests that similarity of maturity is best defined by means other than chronological age. Figure 33 shows the wide difference between the gifted high school boy and the norm high school population.

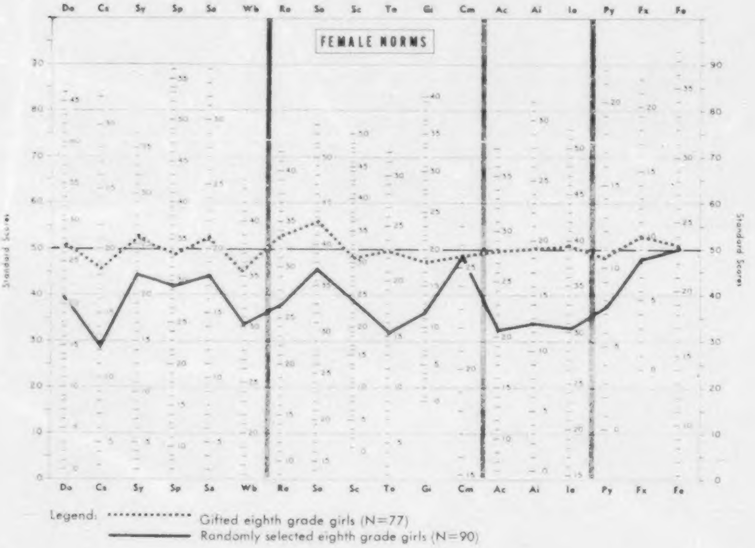

FIGURE 31. A Comparison of the California Psychological Inventory Profiles of Gifted Eighth Grade Girls and Randomly Selected Eighth Grade Girls

A further illustration of the high maturity level of high school gifted boys is given in Figure 34, which compares this group with college norms. Highly significant differences were found on only six of the 18 scales when the two groups were compared. The college group was significantly higher on social presence, well-being, self-control, good impression, and achievement via conformity. The high school gifted rated with high significance on socialization. Significant differences favored the college group on four additional scales. (See page 157.)

COMPARISON OF HIGH SCHOOL GIFTED GIRLS WITH COMPOSITE NORM POPULATION AND WITH COLLEGE NORMS

As observed with all previous gifted groups which were compared to random or norm populations, the gifted high school girls showed a

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maturity pattern far beyond that of the norm population. The high school gifted group had highly significant scores beyond those of the norm group on 13 out of 18 scales and were significantly higher on one more. The only scales that did not differentiate the two groups significantly were those of self-control, good impression, communality, and femininity.

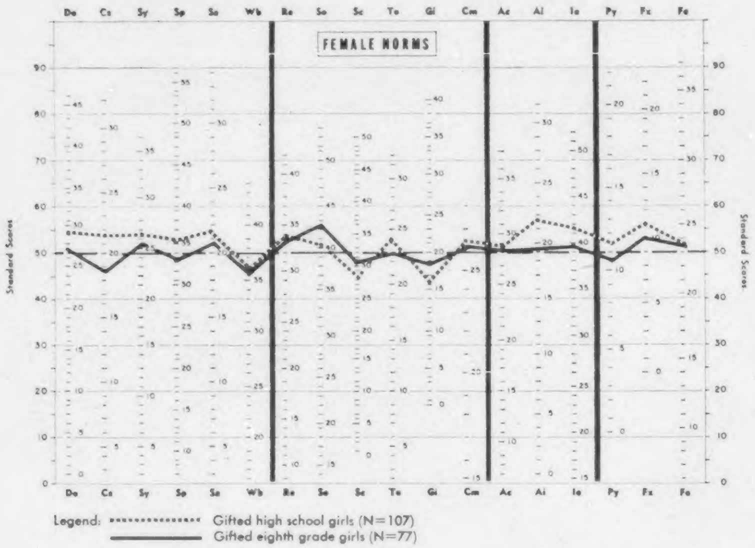

FIGURE 32. A Comparison of the California Psychological Inventory Profiles of Gifted Eighth Grade Girls and Gifted High School Girls

In addition to presenting graphically the comparison between the gifted girls and the norm group, Figure 35 shows that the gifted high school group had a maturity pattern far beyond that of the total norm population. (See page 158.)

The most completely similar groups found in all of the group comparisons were the high school gifted girls and the college norm group. The two groups were identical on 11 out of 18 scales. Of the remaining seven, the college group had significantly higher ratings on self-acceptance, communality, and femininity. (See Figure 36 on page 159.)

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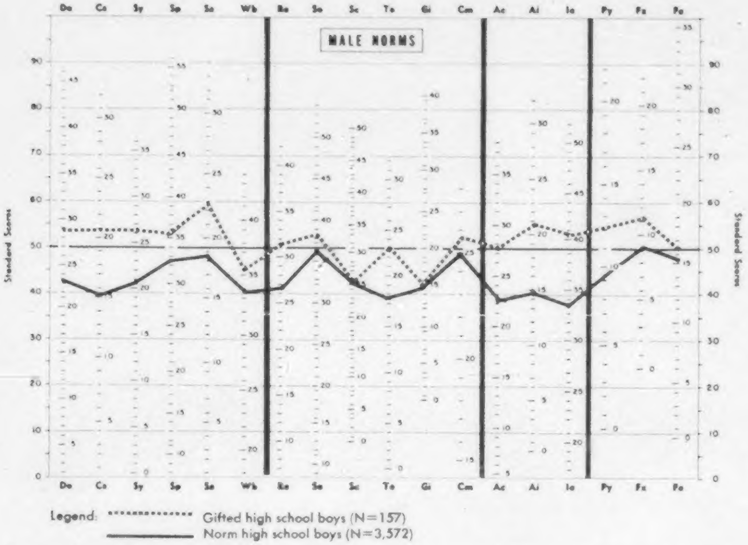

FIGURE 33. A Comparison of the California Psychological Profiles of Gifted High School Boys and the High School Norm Population

COMPARISON OF CPI RATINGS OF GIFTED AND CONTROL GROUPS AT END OF EXPERIMENTAL YEAR

The previous sections dealt with comparisons of gifted pupils with various population groups. In all comparisons, the gifted demonstrated a level of maturity far beyond expectation for their chronological age. Before the experimental year, they were a group which would have been characterized as exceedingly well adjusted personally and socially. A criterion to use in evaluating the success of programs would be whether this adjustment level had been maintained.

As Tables 46 through 51 show, the gifted pupils in experimental programs showed a general tendency to gain in personal-social maturity. On most of the scales, they either gained slightly or maintained the same status. Losses were unusual. (See pages 161-66.)

The eighth grade boys made a highly significant gain in self-acceptance and gained significantly in social presence. They showed a highly significant loss in femininity on the second testing. Eighth grade gifted

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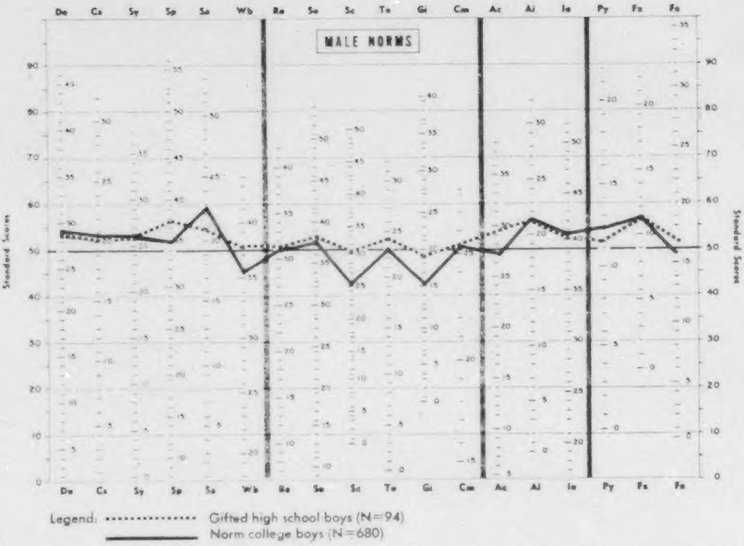

FIGURE 34. A Comparison of the California Psychological Inventory Profiles of Gifted High School Boys and the College Norm Population

boys in the control group had highly significant losses on four scales: dominance, well-being, socialization, and communality. They made significant gains in social presence and tolerance.

Eighth grade girls made a highly significant gain in tolerance when compared to their initial performance and significant gains in capacity for status, social presence, self-acceptance, and flexibility. A significant loss occurred in communality. The control gifted showed a highly significant loss in socialization and significant losses in well-being and communality. They made no significant gains.

Gifted high school boys in experimental programs made highly significant gains in social presence, self-acceptance, tolerance, achievement via independence, and flexibility. An added significant gain occurred in capacity for status. The only significant loss was in femininity. The high school controls made highly significant gains in dominance and self-acceptance and a significant gain in capacity for status.

Gifted high school girls showed highly significant gains in self-acceptance, tolerance, achievement via independence, and flexibility. Signifi-

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cant gains occurred in dominance and social presence. Highly significant gains by the controls were made in social presence and self-acceptance, and significant gains were made in tolerance and achievement via independence.

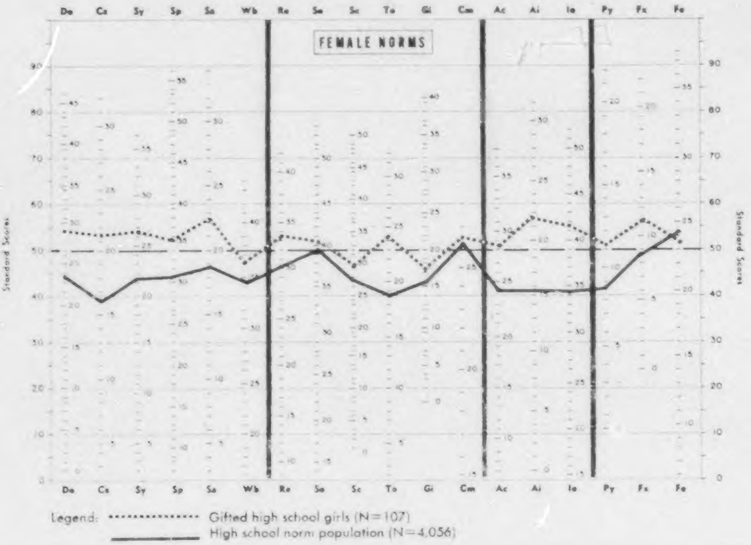

FIGURE 35. A Comparison of the California Psychological Inventory Profiles of Gifted High School Girls and the High School Norm Population

In general, it may be said that the pupils in the experimental program showed significant gains in personal and social maturity during the course of the experimental year. The total experimental group made significant gains in 19 instances, despite the extremely high initial ratings they held. Two of the three losses that were significant were made by boys' groups in femininity, which may actually be regarded as gains. The gifted control pupils who were identified but who did not participate in the program phase of the study, made significant gains in nine cases and lost significantly in eight. The evidence from the California Psychological Inventory merits interpretation on the basis that the pupils

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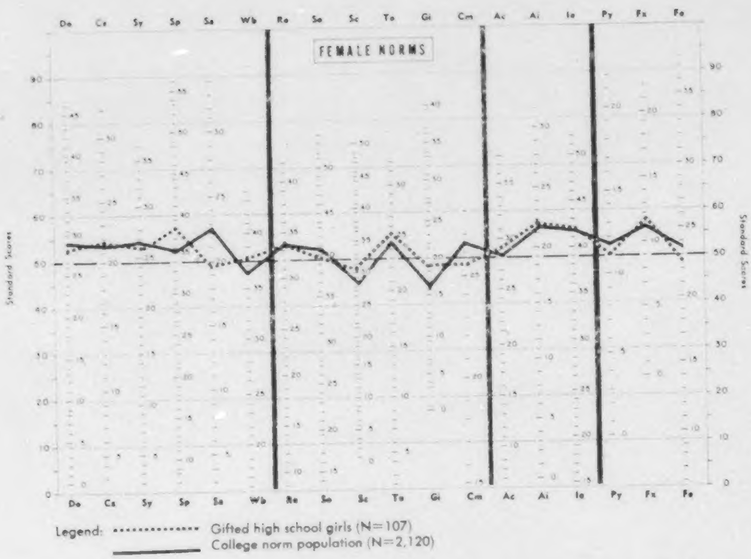

FIGURE 36. A Comparison of the California Psychological Inventory Profiles of Gifted High School Girls and the College Norm Population

who participated in experimental programs for the gifted did so with no damage to themselves in personal-social-psychological terms.

THE NEED FOR KNOWLEDGE

Examination of the results of the California Psychological Inventory subscales revealed interesting support of a "needs" theory propounded by A. H. Maslow.[5] In addition to listing the physiological needs, safety needs, needs for love, respect, and belonging, he lists the need for information, the need for understanding, the need for beauty, and the need for self-actualization as basic. The latter needs are especially important for those who have high competencies for dealing with intellectual learnings and abstractions.

Gifted pupils require an environment in which their competence is recognized and respected. They need opportunities to gratify their desires for knowledge and understanding and the means for gaining information to satisfy their inquisitiveness. Unless their needs for information and understanding (and thus self-actualization) are met, they may develop feelings of inferiority, self-doubt, and incompetence.

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[5] Anne Roe, *The Psychology of Occupations*. New York: John Wiley & Sons, 1956, pp. 26-29.

The relationship of the cognitive needs to feelings of worth were borne out in an assessment of the well-being and intellectual efficiency scales of the California Psychological Inventory. A study was made of the total group of gifted pupils from the eighth grade and high school groups to determine whether any relationship existed between the two scales.

From the eighth grade gifted group on the initial California Psychological Inventory test, two groups of pupils were selected from ratings on the well-being scale. The high group consisted of the upper 14 per cent of the group and included a total of 24 pupils who scored at or above 41 on the scale. The lower 14 per cent included 23 pupils who scored at or below 29. The mean score of the upper group on the intellectual efficiency scale was 42.7; the mean of the low group on the same scale was 33.2. The difference in favor of the high group was 9.5, which was highly significant ($t = 9.5$, $p < .01$).

Closer examination revealed that 87.5 per cent of those who were high in well-being were also above the median in intellectual efficiency; 91.3 per cent of those who were low in well-being were below the median in intellectual efficiency. The relationship between well-being and intellectual efficiency was highly significant statistically ($X^2 = 26.11$, $p < .001$).

Results of the same procedure for the high school gifted sample established a mean of 43.5 for the high well-being group on the intellectual efficiency scale and a mean of 35.6 for the low well-being group on the same scale. The difference between the means of 7.9 again was highly significant ($t = 8.40$, $p < .01$). Of the high school pupils 87.5 per cent who scored high in well-being were also above the intellectual efficiency median; 79.4 per cent who scored low in well-being were also low in intellectual efficiency. Again the relationship between well-being and intellectual efficiency was highly significant ($X^2 = 26.85$, $p < .001$).

It seems then that those gifted pupils who think well of themselves and who are free from self-doubt are also those who operate at a high level of efficiency in intellectual areas; those with less self-regard are likewise those with low intellectual efficiency ratings.

Tables 46 through 51 follow. The meanings of the symbols listed in the CPI Scale column at the extreme left of each table are given in Footnote 3 of this chapter. In all instances the letters CPI stand for California Psychological Inventory. These six tables show comparisons that were made of various groups during the State Study on the basis of the California Psychological Inventory scales.

TABLE 46

Comparison of Total Gifted Group of Eighth Grade and High School Boys at Start of State Study with Norm Population, Using California Psychological Inventory Scales

CPI Scale	Gifted group				Norm population					
	Eighth grade		High school		Eighth grade		High school		College	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Do	27.0	5.5	28.8	6.3	19.5	4.9	23.2	6.0	28.5	6.0
Cs	17.6	3.7	20.7	3.4	11.3	3.5	15.3	4.4	21.4	4.0
Sy	24.4	5.0	26.2	4.7	20.7	4.2	21.5	5.4	25.4	5.3
Sp	32.9	5.7	35.6	6.7	30.6	6.2	32.7	5.7	37.6	6.6
Sa	19.6	3.5	22.6	3.8	17.6	3.8	18.7	4.1	20.6	6.3
Wb	35.6	4.8	35.8	4.2	27.2	6.1	33.5	5.6	37.2	4.9
Re	31.7	4.3	31.1	5.1	21.5	5.8	26.7	5.7	31.5	4.7
So	40.8	4.9	38.1	6.4	29.9	5.3	36.3	6.0	37.5	5.2
Sc	28.2	8.8	25.8	8.3	18.0	7.2	25.3	8.0	29.2	7.1
To	22.4	4.4	23.1	4.5	12.1	4.8	17.8	5.3	24.0	4.8
Gi	16.9	6.8	15.8	6.3	10.3	4.7	15.1	6.2	18.1	6.3
Cm	26.4	1.8	25.4	2.1	23.6	3.5	25.2	2.8	25.3	2.2
Ac	26.3	4.2	27.2	4.6	16.4	4.4	22.3	5.3	28.6	4.6
Ai	18.0	3.9	20.8	3.5	10.9	3.5	14.6	4.1	21.6	4.1
Ie	38.7	4.4	40.5	4.3	26.0	5.3	33.6	6.3	40.8	5.2
Py	11.2	2.7	12.0	2.6	7.9	2.7	9.2	2.6	11.9	3.1
Fx	9.4	3.4	11.0	4.0	7.7	2.7	9.1	3.4	11.4	3.8
Fe	17.4	3.2	16.1	3.4	15.1	3.4	15.4	3.6	16.8	3.8
N	94		157		82		3572		680	

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TABLE 47

Comparison of Total Gifted Group of Eighth Grade and High School Girls at Start of State Study with Norm Population, Using California Psychological Inventory Scales

CPI Scale	Gifted group				Norm population					
	Eighth grade		High school		Eighth grade		High school		College	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Do	27.2	5.3	29.0	5.8	20.7	4.7	23.7	6.1	28.5	5.9
Cs	18.7	3.8	21.5	3.8	12.2	4.1	16.0	4.9	22.2	3.6
Sy	25.1	5.0	26.5	4.7	21.7	4.1	21.4	5.7	26.0	4.8
Sp	33.3	6.3	35.7	5.7	29.7	5.6	31.1	5.8	37.0	5.9
Sa	20.6	4.3	22.3	3.5	18.1	3.8	18.9	4.4	19.5	8.1
Wb	35.3	5.5	36.0	5.2	30.0	5.6	34.6	5.7	37.5	4.4
Re	33.1	4.3	33.6	3.8	26.0	4.9	30.0	5.2	33.3	4.1
So	42.3	4.7	40.4	5.1	37.2	5.6	39.4	5.6	39.5	5.0
Sc	30.8	9.1	28.6	8.1	23.2	7.6	27.6	8.5	30.8	7.4
To	22.9	5.2	24.3	4.3	15.1	4.9	18.7	5.5	25.0	4.2
Gi	18.1	7.5	16.3	5.6	11.7	4.9	15.7	6.2	19.1	6.2
Cm	26.1	1.7	26.3	1.8	25.5	2.0	26.1	1.9	25.5	2.0
Ac	28.0	4.6	28.2	5.0	20.2	5.0	24.1	5.3	28.8	4.4
Ai	19.0	3.8	21.6	4.0	12.9	3.8	15.5	4.2	21.9	3.9
Ie	39.7	5.2	41.6	4.4	30.2	4.9	34.4	6.5	41.4	4.8
Py	10.8	3.0	11.3	3.0	7.5	2.5	8.7	2.6	11.4	2.9
Fx	10.0	3.6	11.0	3.6	8.3	3.5	8.9	3.2	11.6	3.7
Fe	23.5	3.6	23.5	3.4	23.2	4.0	24.1	3.5	22.8	3.3
N	77		107		90		4056		2120	

TABLE 48

Comparison of Total Gifted, Experimental, and Control Groups of Eighth Grade Boys in the State Study on First and Second CPI Testing, Using California Psychological Inventory Scales

CPI Scale	First CPI testing						Second CPI testing			
	Total gifted group		Experimental group		Control group		Experimental group		Control group	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Do	27.0	5.50	27.55	5.31	30.8	5.0	29.0	5.8	24.3	8.8
Cs	17.62	3.73	18.38	3.66	16.39	3.56	19.09	3.33	17.39	4.64
Sy	24.45	5.04	25.26	4.64	23.14	5.45	26.22	9.31	23.14	6.37
Sp	32.90	5.72	34.40	5.51	30.50	5.29	35.95	5.76	33.22	6.05
Sa	19.60	3.47	19.86	3.30	19.17	3.74	21.91	3.73	19.72	4.68
Wb	35.58	4.80	35.81	4.46	35.22	5.34	35.17	4.54	30.19	12.27
Re	31.74	4.26	32.07	3.51	31.22	5.26	32.16	4.68	31.75	5.00
So	40.79	4.94	40.38	4.98	41.44	4.86	40.26	5.74	35.14	11.17
Sc	28.23	8.78	28.02	7.96	28.58	10.08	27.24	8.48	28.44	9.12
To	22.41	4.36	23.09	4.04	21.33	4.68	23.34	3.61	23.17	5.4
Gi	16.86	6.78	16.43	6.50	17.56	7.25	15.57	6.75	17.69	7.24
Cm	26.45	1.77	26.34	1.87	26.61	1.61	26.00	2.37	20.30	9.92
Ac	26.34	4.15	26.31	4.28	26.39	3.99	27.17	4.19	26.83	5.53
Ai	18.02	3.90	18.40	4.18	17.42	3.37	19.29	3.72	18.80	4.50
Ie	38.67	4.44	39.29	3.89	37.67	5.11	39.57	4.10	34.30	10.73
Py	11.22	2.67	11.46	2.67	10.83	2.66	11.24	2.55	11.36	2.40
Fx	9.39	3.39	9.53	3.48	9.17	3.29	10.21	4.12	7.39	5.25
Fe	17.39	3.16	17.52	2.83	17.19	3.66	16.29	3.76	16.67	4.17
N	94		58		36		58		36	

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TABLE 49

Comparison of Total Gifted, Experimental, and Control Groups of Eighth Grade Girls in the State Study on First and Second CPI Testing, Using California Psychological Inventory Scales

CPI Scale	First CPI testing						Second CPI testing			
	Total gifted group		Experimental group		Control group		Experimental group		Control group	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Do	27.2	5.3	27.91	5.20	25.0	5.2	29.2	6.5	23.6	8.6
Cs	18.74	3.78	19.23	3.81	17.35	3.42	20.14	3.64	17.95	4.06
Sy	25.09	4.97	25.58	5.09	24.55	4.72	26.35	4.54	23.90	3.31
Sp	33.28	6.31	33.60	6.02	32.40	7.16	35.26	5.69	34.15	6.88
Sa	20.62	4.29	20.56	4.34	20.80	4.25	22.02	4.82	21.15	4.13
Wb	35.34	5.47	35.86	5.31	33.85	5.78	36.35	11.44	28.40	12.62
Re	33.08	4.32	33.74	4.08	31.20	4.55	33.346	4.55	30.70	5.20
So	42.28	4.69	42.28	4.84	42.30	4.34	41.68	6.45	35.10	11.82
Sc	30.82	9.09	31.91	8.84	27.70	9.28	30.04	10.41	25.60	10.68
To	22.94	5.17	23.74	4.73	20.65	5.80	25.28	4.08	21.80	6.14
Gi	18.13	7.50	19.02	7.66	15.60	6.56	18.65	6.69	14.65	6.03
Cm	26.14	1.74	26.09	1.80	26.30	1.56	25.19	2.59	20.05	10.46
Ac	27.97	4.56	28.54	4.47	26.35	4.52	27.79	5.09	26.20	5.65
Ai	18.96	3.82	19.32	3.29	17.95	4.99	20.00	3.24	18.55	4.60
Ie	39.66	5.20	40.40	4.86	37.55	5.66	39.86	4.37	33.70	10.24
Py	10.82	2.97	10.84	2.74	10.75	3.64	10.84	2.93	9.95	2.82
Fx	9.96	3.56	9.93	3.28	10.05	4.36	10.96	3.76	7.50	5.45
Fe	23.47	3.56	23.30	3.38	23.95	4.11	23.65	3.16	24.90	3.55
N	77		57		20		57		20	

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TABLE 50

Comparison of Total Gifted, Experimental, and Control Groups of High School Boys in the State Study on First and Second CPI Testing, Using California Psychological Inventory Scales

CPI Scale	First CPI testing						Second CPI testing			
	Total gifted group		Experimental group		Control group		Experimental group		Control group	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Do	28.83	6.26	29.07	6.56	28.27	5.54	30.16	6.66	29.71	6.30
Cs	20.66	3.36	20.84	3.25	20.23	3.61	21.52	3.49	21.17	4.15
Sy	26.17	4.70	26.31	4.62	25.85	4.92	26.88	4.94	26.73	4.73
Sp	35.57	6.69	34.86	7.13	37.19	5.28	38.64	5.74	38.27	5.79
Sa	22.64	3.80	22.50	3.86	22.96	3.67	23.98	3.82	24.67	4.31
Wb	35.76	4.15	35.82	4.36	35.62	3.69	35.94	4.94	35.31	4.62
Re	31.10	5.08	31.65	4.30	29.85	6.40	31.76	4.66	30.29	5.18
So	38.06	6.42	38.19	6.14	37.77	7.05	37.42	6.63	36.69	6.76
Sc	25.83	8.32	26.24	8.41	24.90	8.14	26.40	8.32	24.29	8.49
To	23.12	4.48	23.26	4.08	22.81	5.31	24.28	4.46	23.46	4.95
Gi	15.84	6.30	16.23	6.56	14.96	5.64	16.16	6.23	15.33	6.51
Cm	25.39	2.10	25.37	2.25	25.44	1.72	24.97	2.74	25.21	2.35
Ac	27.15	4.57	27.29	4.16	26.83	5.42	27.50	4.82	26.29	5.38
Ai	20.82	3.47	20.85	3.25	20.75	3.96	22.02	3.60	21.40	4.23
Ie	40.54	4.28	40.33	4.16	41.02	4.55	40.83	5.02	40.02	4.95
Py	12.02	2.57	12.21	2.51	11.60	2.69	12.26	2.56	11.31	3.02
Fx	10.99	4.00	10.86	4.09	11.29	3.82	11.92	3.72	12.00	4.41
Fe	16.06	3.38	16.38	3.43	15.33	3.19	15.82	3.83	14.50	3.74
N	157		109		48		109		48	

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TABLE 51

Comparison of Total Gifted, Experimental, and Control Groups of High School Girls in the State Study on First and Second CPI Testing, Using California Psychological Inventory Scales

CPI Scale	First CPI testing						Second CPI testing			
	Total gifted group		Experimental group		Control group		Experimental group		Control group	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Do	29.01	5.83	29.22	5.87	28.56	5.82	30.03	5.91	29.38	6.30
Cs	21.48	3.81	21.73	3.80	20.97	3.86	22.16	3.62	21.53	3.41
Sy	26.46	4.66	27.15	4.26	24.97	5.18	26.77	3.78	25.47	4.24
Sp	35.74	5.68	36.12	4.82	34.91	8.58	37.41	4.67	37.29	6.58
Sa	22.34	3.54	22.70	3.20	21.56	4.11	24.19	3.66	23.26	4.68
Wb	36.03	5.25	36.01	4.66	36.06	6.42	36.75	4.90	35.97	4.84
Re	33.64	3.77	33.38	3.89	34.18	3.49	33.49	4.23	33.38	4.38
So	40.37	5.06	40.75	5.23	39.56	4.65	40.40	5.25	38.62	5.31
Sc	28.57	8.08	28.40	8.44	28.94	7.35	28.58	7.95	27.85	8.63
To	24.31	4.34	24.25	4.53	24.44	4.02	25.64	3.78	25.59	3.84
Gi	16.28	5.57	16.26	5.87	16.32	4.96	15.82	5.94	16.18	5.23
Cm	26.25	1.78	26.26	1.69	26.24	1.98	26.44	1.51	25.50	2.19
Ac	28.16	4.95	28.58	4.93	27.26	4.96	28.05	4.94	27.06	4.93
Ai	21.64	4.02	21.78	4.04	21.35	4.00	23.16	3.77	22.74	3.27
Ie	41.55	4.39	41.79	4.41	41.03	4.35	42.16	4.40	41.09	4.33
Py	11.28	3.00	11.33	3.01	11.18	3.04	11.51	2.54	11.56	2.84
Fx	10.99	3.56	10.75	3.55	11.50	3.58	12.22	3.54	12.26	3.68
Fe	23.47	3.42	23.60	3.25	23.18	3.80	23.42	2.64	23.00	3.20
N	107		73		34		73		34	

Chapter 16

ADMINISTRATIVE OPERATION OF PROGRAMS

When gifted pupils are identified and some information regarding their characteristics and abilities is available, the question arises concerning the best educational provisions for them. The answer is a difficult but crucial one because comprehensive, ongoing, intelligently planned, and meaningful educational experiences for the gifted pupil are in the final analysis the goals for which identification and study procedures are established. Without well-conceived and well-executed programs other work for the gifted in the schools is largely meaningless.

The discussion in this chapter centers upon the factors that make programs for gifted pupils successful. What makes one program work and another one fail although equal amounts of time and money have been spent upon them? Answers to this question will be found in part in Chapter 17, which contains a discussion of each program. Five aspects of successful program planning, based upon the experiences of the study staff, are presented here as a background to the evaluation of specific programs. These are (1) philosophical acceptance of programs within the school district and community; (2) planned objectives and evaluation procedures; (3) continuity of programs; (4) teacher training; and (5) consultant help.

PHILOSOPHICAL ACCEPTANCE OF PROGRAMS

Much heat is generated in discussions of the merits of various plans for educating the gifted. These discussions tend to produce little more than heat since they usually are based upon opinion rather than evidence. When one hears school personnel and laymen in one community laud the special class arrangements that are working well for them while those in a nearby town are of the unanimous opinion that gifted children can be provided for successfully in the regular classroom, he generally finds that both groups have two things in common—interest in gifted children and firm convictions. Their notions for educating the gifted are poles apart and yet both groups claim success. Frequently this success can be documented. The difficulty arises when comparisons are attempted because of the many variables within the school situation.

The important problem here is not one of comparative evaluation but of philosophical attitude. In order to have a program start and continue with any promise of eventual success, it is important that those adults affected by it (parents and school personnel) believe in its merits. If this is true, they will work together to meet and overcome problems that inevitably arise in any adaptation of the usual routine. If they are not convinced that a program has worth, they will adopt an "I told you so" attitude and regard the difficulties as evidence of their own perspicacity and sound judgment.

The chief means of building acceptance of programs is communication. This is as important within professional groups as it is between lay and professional groups. Communication is needed especially in those programs that involve arrangements different from the usual school routine which adults themselves have experienced, but it is important in all kinds of planning for the gifted. Thorough understanding of the purposes and procedures of a program build confidence in those affected by it; failure to communicate builds distrust and eventual failure.

Interpretation of programs must be continuous. It is not enough to launch discussions and then drop any further contacts. Unless teachers and parents are kept informed, they inevitably wonder what is going on or whether anything is going on. For example, the parents and teachers of the pupils in the part-time special group in the study met several times with the project research and curriculum consultant prior to the initiation of the special group. Frequently during the year the consultants contacted parents and the regular classroom teachers to discuss the special activities and total program of the pupils.

PLANNED OBJECTIVES AND EVALUATION PROCEDURES

Special planning for the intellectually gifted results in the expenditure of added funds and efforts and, at times, special school arrangements. The special planning, therefore, must be based upon a sound consideration of the purposes to be achieved and the means for evaluating whether the program attains these purposes. This must be done to answer the legitimate questions which will be raised regarding the effectiveness of programs. It must be done, too, to provide a basis for continuous improvement of programs already in existence.

Before programs are launched, careful thought should be given to the educational needs of the identified gifted pupils and students within a school district. What are their special interests and abilities? What kinds of curriculum experiences and materials do they need? What special areas need emphasis and in what ways? What special arrangements will work best within the existing school structure? After these questions have been answered and plans have been made, the need arises for evaluation of the plans. What aspects of the program need evaluation? What instruments are needed? If we evaluate academic performance, which specific areas do we measure? In what manner? How will we answer questions regarding the personal-social adjustment of the pupils in the special program? How will we include the reactions of all those involved?

A good evaluation program serves several purposes. It answers the questions of both skeptics and supporters regarding various aspects of the program. It points out areas in which improvements have been made and those in which improvements are needed. And, if properly conducted, it involves periodically those affected by the program—parents, pupils, and teachers—and thus fosters support and understanding of the program. In other words, the evaluation program is a medium of constant communication for those interested in the program.

CONTINUITY OF PROGRAMS

The special educational needs of the intellectually gifted child are continuous. They do not exist at selected grade levels, such as the fourth, seventh, and ninth, although the program planning in some schools appears to support this belief. If a gifted child has exceptional learning needs, these needs exist throughout his educational life and should be met. A program that meets the child's needs at one grade level and fails to provide for them the next year may do more harm to the child and to home-school relationships than no program at all. It is important that planning be co-ordinated among the various school levels. The pupil who has had two years of a foreign language at the elementary school level should be able to continue his work in the seventh grade. The pupil who completes algebra in the eighth grade should be able to go on in mathematics as a freshman. And the pupil who enters high school with generally excellent academic achievement should have a kind of education in keeping with his ability to perform.

TEACHER TRAINING

Because work with teachers formed an important and continuing part of the State Study during the experimental year, this section is longer than those preceding it. The teacher in-service activities encompassed three phases: (1) preparation in summer workshops for the experimental program; (2) in-service meetings; and (3) participation in evaluation procedures.

Summer Workshops

During the summer of 1958 workshops were held for teachers and administrators who were to work with pupils in the experimental groups during the 1958-59 school year. The workshops were held for a period of two weeks each at San Diego State College, at the University of California, Los Angeles, and at Modesto under the auspices of San Francisco State College. The following invitation regarding workshop participation was sent by Ruth A. Martinson, Co-ordinator, California State Study Project on Programs for Gifted Pupils, to teachers who had been selected for the State Study. Interested administrative personnel also were invited to participate in the workshops. A total of 141 persons were enrolled in the three centers.

> During the 1958-59 school year, the California State Department of Education will be engaged in a study of various types of school provisions for gifted children. Your district has been chosen as one in three county centers within the state to participate in this significant project. From the study, recommendations will be formulated by an advisory committee and the staff for the Legislature, and a handbook will be developed for school use.
>
> You have been named by your administrator as a teacher who would contribute a great deal to this study. Because we realize the crucial importance of the classroom teacher to the success of the whole project, we are writing to you to ask whether you will be able to attend one of three summer workshops to be held in the center areas. The workshops will be open only to teachers in the program and their administrative colleagues.
>
> Attendance is not mandatory, of course, but we feel that the workshops will be well worth your time. The research and teacher consultants for the project as well as experts on curriculum development for the gifted will be present to work with you on practical plans for the coming year.
>
> The California Congress of Parents and Teachers has authorized two scholarships of $50 each for each center. If you are interested in applying, will you please submit a letter, stating your general training background and qualifications for a scholarship.

The summer workshops were planned to inform participants of the purposes of the State Study project, to acquaint them with the members of the State Study staff and with their co-workers in the project, to orient them to the needs of gifted children, to acquaint them with study data on the pupils with whom they would be working, and to assist them with the initiation of plans for the project year. During the two-week period at each workshop center, the following general workshop schedule was followed:

WORKSHOP SCHEDULE

Topic	*Resource*	*Dates at San Diego 1958*	*Dates at Los Angeles 1958*	*Dates at Modesto 1958*
Orientation to State Study plan	Donald E. Kitch			
Orientation to workshop, personnel, contributions, materials, and the like	Ruth A. Martinson	7/7	7/21	8/19
Scope of evaluation and techniques to be employed	Research consultants			
Motivation, educational needs, and planning	May Seagoe	7/8	7/22	8/18
Analysis of educational and personal needs and interests of pupils	Research consultants	7/9	7/23	8/20

Suggested curriculum practices related to needs	Curriculum consultants	7/10	7/24	8/21
Individual study projects, development of plans and materials related to individual data	Lorene Marshall	7/14-18	7/28-8/1	
	Jean Cologne	7/15	7/30	
	George Banks	7/15		
	Beth Lamb	7/16		
	Howard Weisbrod	7/16	7/29	8/26
	Adelaide Wilson		7/29	
	Marian Conde			8/26
	Vivian Rushworth			8/27
	Robert Shutes			8/27

The evaluation form shown as Table 52 was developed to record the participants' reactions to the workshops and thus determine to what extent the purposes of the workshops had been fulfilled. The table shows a high incidence of positive responses in all evaluation categories but Number 3.

The workshop schedule indicates the general scope of the two-week session. The evaluations recorded in Table 52 give the teachers' and administrators' reactions regarding the value of the workshop. Part of the content itself is presented in the section that follows in order to exemplify in some detail the nature of the workshop.

The session on motivation, educational needs, and planning centered upon a presentation and discussion of learning characteristics of gifted children and concomitant problems. The workshop participants considered ways to meet the needs of gifted children successfully and evaluated activities suggested in the literature made available to them during the session. The learning characteristics and concomitant problems of the gifted are listed as follows:

SOME LEARNING CHARACTERISTICS OF GIFTED CHILDREN

Characteristics	*Concomitant Problems*
1. Keen power of observation; naive receptivity; sense of the significant; willingness to examine the unusual	1. Possible gullibility
2. Power of abstraction, conceptualization, synthesis; interest in inductive learning and problem solving; pleasure in intellectual activity	2. Occasional resistance to direction; rejection or omission of detail
3. Interest in cause-effect relations, ability to see relationships; interest in applying concepts; love of truth	3. Difficulty in accepting the illogical
4. Liking for structure and order; liking for consistency, as in value systems, number systems, clocks, calendars	4. Invention of own system, sometimes conflicting
5. Retentiveness	5. Dislike for routine and drill; need for early mastery of foundation skills

SOME LEARNING CHARACTERISTICS OF GIFTED CHILDREN
(Continued)

Characteristics	*Concomitant Problems*
6. Verbal proficiency; large vocabulary; facility in expression; interest in reading; breadth of information in advanced areas	6. Need for specialized reading vocabulary early; parental resistance to reading; escape into verbalism
7. Questioning attitude, intellectual curiosity, inquisitive mind; intrinsic motivation	7. Lack of early home or school stimulation
8. Power of critical thinking; skepticism, evaluative testing; self-criticism and self-checking	8. Critical attitude toward others; discouragement from self-criticism
9. Creativeness and inventiveness; liking for new ways of doing things; interest in creating, brain-storming, free-wheeling	9. Rejection of the known; need to invent for oneself
10. Power of concentration; intense attention that excludes all else; long attention span	10. Resistance to interruption
11. Persistent, goal-directed behavior	11. Stubbornness
12. Sensitivity, intuitiveness; empathy for others; need for emotional support and a sympathetic attitude	12. Need for success and recognition; sensitivity to criticism; vulnerability to peer group rejection
13. High energy, alertness, eagerness; periods of intense voluntary effort preceding invention	13. Frustration with inactivity and absence of progress
14. Independence in work and study; preference for individualized work; self-reliance; need for freedom of movement and action	14. Parent and peer group pressures and nonconformity; problems of rejection and rebellion
15. Versatility and virtuosity; diversity of interests and abilities; many hobbies; proficiency in art forms such as music and drawing	15. Lack of homogeneity in group work; need for flexibility and individualization; need for help in exploring and developing interests; need to build basic competencies in major interests
16. Friendliness and outgoingness	16. Need for peer group relations in many types of groups; problems in developing social leadership

On the third day of the workshop, the staff research consultants further developed the presentations of the first and second days by analyzing both group and individual needs of the pupil group in the State Study. They worked with the teachers in an examination of previously prepared folders of material concerning each pupil, compiled during the spring identification phase of the study. The teachers had

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TABLE 52

Evaluative Summary of the Work of the State Study Summer Workshops, Held Preliminary to the Project Year

Evaluation category	Responses of workshop participants					
	Yes		None		No	
	Number	Per cent	Number	Per cent	Number	Per cent
1. I have a clear understanding of the purposes of the State Study of gifted pupils	127	96.9	0	0	4	3.1
2. I realize the importance of my part in it	126	98.4	2	1.6	0	0
3. I am aware of the ways in which each of the staff members will work with me next year	62	49.6	42	33.6	21	16.8
4. I know the meaning of the study to all schools in California	109	85.2	18	14.1	1	.8
5. I have learned better to appreciate the special educational needs of gifted children	126	96.2	3	2.3	2	1.5
6. I understand better some of the special psychological problems which they may face	123	93.9	6	4.6	2	1.5
7. I have become acquainted with the needs of the pupils I shall have next year	79	76.7	8	7.8	16	15.5
8. I understand how I can continue to get help and information regarding them	99	80.5	20	16.3	4	3.3
9. I know how the curriculm consultant will work with teacher groups	77	64.7	39	32.8	3	2.4
10. I am aware of what my contribution will be in the process of curriculum development	81	85.3	10	10.5	4	4.2
11. I have become well acquainted with the state staff members for my county area	82	86.3	12	12.6	1	1.1
12. I have become well acquainted with the teachers of my teaching level in the study	87	72.5	16	13.3	17	14.2
13. I feel that I have a good start toward the development of curriculum materials	113	89.0	8	6.3	6	4.7
14. I have learned of resources in curriculum which will be of value to me	118	90.8	8	6.2	4	3.1

available to them throughout the workshop a variety of information regarding the children with whom they would be working during the 1958-59 school year. This information included data on the children's abilities, achievement, interests, and general development and the results of interviews. With the help of the research consultants, the teachers analyzed achievement test data and prepared profiles of achievement for each child. To understand and appreciate further the achievement levels of the pupils, the teachers themselves took sections of the achievement tests, and this experience enhanced the significance of the pupil scores.

The session on curriculum practices was devoted to studying illustrative practices found helpful in working with groups in selected subject areas and to developing general criteria needed in the evaluation of materials. Time was devoted also to a discussion of the educational planning that had been set forth in a particular case study of a gifted child.

In preparation for the workshop and for individual study projects, several hundred curriculum guides and publications on the gifted had been collected by the staff. These came from all parts of the United States. They were made available to the teachers during the workshop and during the following school year.

Time was allocated for individual study projects to give the teachers opportunity to study literature on the characteristics and needs of gifted children and to study curriculum materials at hand. They began making plans for the 1958-59 school year and developed ideas and materials for use with the gifted pupils they would teach. Some of these materials were exchanged among the three workshop groups.

The following topics illustrate the variety and broad range of those explored by the teachers in their individual study projects:

Responsibility of the Administrator in Providing for Gifted Children
Adventures in Learning
Stimulating Questions About Varied Topics
A Bibliography of Books on Mexico for the Gifted
Library Reference and Work Skills
Eighth Grade English and Social Studies—The Research Council
Suggested Topics for Oral Reports in Mathematics
A Form for Summarizing Case Study Data on Gifted Pupils

During the second week in the summer workshops, the teachers considered other problems which they believed were important to the success of their programs, in addition to the ones involving curriculum development. Plans were made for in-service activities and for work with parents, for example. In one county area, teachers of the regular classroom whose pupils would be involved in special part-time groupings met to discuss and suggest solutions to problems. The following questions and recommendations illustrate the nature and type of considerations during these meetings:

1. How will the program affect the regular schedule? How can activities be correlated?

Recommendation: The child should share learnings. This will enrich the regular class; others will learn. Teachers should promote and continue to promote complete understanding of the regular class as to the activities of pupils in the State Study. Regular teachers should observe special classes. Bring all teachers, regular and special, together to air problems.

. . . . . .

3. How can we prevent and forestall hostile attitudes toward pupil and teacher participants?

   Recommendation: Have administrators talk to faculty personnel. Have teachers work with parent and child as necessary. Give all children an opportunity to contribute something special, to work on individual projects. Group the gifted and able together. Help the teacher realize selection was done on basis of the child, not the teacher. Have workshop members take part in a panel discussion for faculty members. Inform the community. Enlist the help of service clubs as well as the parent-teacher association.

. . . . . .

8. How can we best prevent overloading pupils with work accumulating from special activities added to the regular class program?

   Recommendation: Free them from drill, busy work. Maintain close relationship between teachers, special and regular, and between teachers and parents regarding subject matter. The teacher should watch for overloading, frustration. The regular teacher needs to be aware of the amount of the pupil's work involved in the special class.

In addition to the 14 evaluation items listed in Table 52, the teachers were asked to react subjectively to three others: the best features of the workshop; features which needed improvement; and areas in which they would like help during the ensuing school year.

Several comments regarding what the teachers considered the best features of the workshop follow:

> Meeting the State staff. Hearing the background information—legal and psychological.
>
> Test data and future pupil histories.
>
> Curriculum materials gathered by consultants. Speakers and variety of reading material provided in our individual study groups.
>
> I feel much better prepared to teach not only the gifted children but the other children in my class as well. I am so pleased to know that there are so many fine sources of material available. The enthusiasm of the staff and their presentations have made me even more aware of my obligations as a classroom teacher.
>
> Opportunity to read, discuss, clarify our thinking—before acting. The opportunity to get acquainted with all in the program and a feeling of pride.

> This workshop has opened many doors and I feel has been of great assistance to the teachers from my school. Thanks for a great experience.

Features needing improvement cited most often were those of time and organization. The following comments are typical:

> More time to use the materials.
>
> More special people in subject areas whom we could ask questions (like Dr. Brueckner in arithmetic).
>
> More time.
>
> Better organization so that we could have more time to work in specific areas in curriculum development.

As might be expected, the teachers listed many and diverse topics on which they wanted help during the experimental years. The list that follows suggests the variety:

Individualized reading
Ideas for enrichment in arithmetic and science
Scientific method, critical thinking
Explanation of test profiles to pupils, parents
Securing experts as consultants in history, economics, and other areas

The teachers added the following comments:

> Suggestions about ways (although I have gained many at the workshop) in which the course of study may be enriched
>
> The kinds (and the limits) of the extensions we can make to the course of study
>
> How to use community resources

—and this final succinct statement:

> Will let you know when I start to flounder.

The requests of the teachers were compiled by the curriculum consultants for each area and were used to advantage during the experimental year. The compilations served as guides for the initiation of in-service plans, and the consultants attempted to follow up the requests in each case either through direct contact with resource persons, through the collection of requested materials for the teachers, or through the help of district resource personnel.

Teacher Participation in Evaluation Procedures

The plans for evaluation and the evaluation materials were developed by members of the project staff. Many of the materials which were used were completed during the year by the teachers of the experimental groups and served the purpose not only of furnishing data regarding plans and pupils but also of motivating teachers to evaluate the performance of their pupils and themselves while the study was in progress.

The form for evaluation of self and plan (see "Self-evaluation by Teachers in Project," Appendix P) was used by the teachers on several occasions during the experimental year. The form was used as an in-service device as well as for evaluation purposes. It enabled teachers to reflect on the effectiveness of their work and the plan with which they were working and to point out their needs. It served as well to point out to the consultants areas of assistance which needed additional attention.

In January of the experimental year the teachers were given copies of the following Teacher Study and Evaluation Form at their in-service meetings. The five competencies listed on the form are important qualities for the successful teacher of the gifted, and the mere presentation and discussion of the qualities served to emphasize them. The teachers were encouraged to keep the forms and periodically to take stock of the extent to which each of the five qualities was being applied in the teaching of gifted children.

TEACHER STUDY AND EVALUATION FORM

The following scales reflect some of the teaching competencies known to be important in the education of gifted pupils. It may be of interest to you to evaluate yourself on the items to determine your own strengths and needs.

1. *Poor* 2. *Average* 3. *Good* 4. *Excellent*

Ability to individualize assignments to meet variation in gifted pupil needs:

1. ____________ 2. ____________ 3. ____________ 4. ____________

Ability to accept divergent views in class discussion:

1. ____________ 2. ____________ 3. ____________ 4. ____________

Skill in questioning to stimulate exploration and independent thinking:

1. ____________ 2. ____________ 3. ____________ 4. ____________

Administrative ability to provide the actual materials needed to individualize instruction:

1. ____________ 2. ____________ 3. ____________ 4. ____________

Intellectual zest—ability to excite scholarship and curiosity among gifted children:

1. ____________ 2. ____________ 3. ____________ 4. ____________

In-service Meetings

Teachers working with experimental groups in all three county areas met with the curriculum consultants a minimum of twice monthly during the school year. The contacts were both individual and group. The meetings were an outgrowth of the summer session initiation of in-service training, and topics discussed were based upon the requests of the teachers. The teachers met in small groups formed on the basis of grade level and types of groups with which they were working. For example, teachers of first grade children in enrichment plans met together, as did teachers of honors classes. When topics of a general nature were discussed, teachers from several groupings or several grade levels met together. District, college and university personnel, project staff members, and personnel from industry served as consultants.

The meetings fulfilled several important purposes. They (1) provided teachers opportunity to consider with experts in various fields the educational needs of the pupils; (2) enabled teachers to meet together for special curriculum development and to profit from one another's ideas and experience; (3) served as a clearing house for new materials and developments in specific areas of study; and (4) enabled the teachers to maintain the feeling developed at the workshops that they were actively directing the educational phase of the project.

The meetings included demonstration and visitations as well as discussions. It is not possible to detail the total scope of the in-service activities, but the following list of topics points to some of the work that was done:

Interpretation and Application of Test Results
Individual Differences Within the Special Class
Understanding and Communication of Mathematical Language
Individualized Reading
Music for Gifted Children
Language and Creative Writing
Science Activities
Teaching Research Techniques

CONSULTANT HELP

Teaching gifted children is not easy. The fact that they learn quantitatively and qualitatively with much greater speed and facility than the average child makes it necessary for the teacher to supply them constantly with supplementary books and materials and to provide them with plentiful opportunities for stimulating experiences and contacts if the children are to have an education in keeping with their ability. The need for extra attention means that the teacher must have help on a continuous basis and in many ways.

The need for consultant help is not eliminated by grouping. As it is pointed out in the section dealing with the evaluation of various plans (see Chapter 17), teachers have found that gifted children in all types of administrative arrangements are in need of constant enrichment opportunities. The teacher of a special group, indeed, finds his problem compounded in proportion to the number of gifted children in his classroom—if he truly tries to educate each individual.

The chief function of the consultant, then, is to work directly with teachers individually and in groups and to provide for the teacher resources that can be used in their day-to-day work with their pupils. Even though the services of the consultant are not entirely different from those of the regular consultants, they are sufficiently different to merit attention. It is for this reason that certain of the duties are described and the competencies required in performing the duties are suggested.

One important responsibility is that of teacher training. Because most teachers need special help in understanding gifted children and their educational needs, the consultant must work consistently not just with teachers who have gifted pupils in their classrooms but with the entire faculty. In addition, the school experiences of many gifted children are extended beyond the classroom through special arrangements. This means that the consultant must work with a variety of other teachers—some trained and some not. For example, it may be necessary to work closely for a period of time with high school teachers who are in charge of special interest groups composed of elementary school pupils, or with community members who have volunteered to teach in their own special fields. Or it may be necessary to train a person highly adept in a foreign language in proper methods for presenting his knowledge to a given age and ability group.

How to meet as well as possible the never-ending needs of teachers for resources and materials is a considerable problem for the consultant. These needs extend beyond the usual and call for constant ingenuity and resourcefulness. Lists of resources and curriculum ideas must be developed for the special abilities of the children. The consultant will need to meet with school and public librarians regarding the special needs of individuals or groups. Again, because the teachers of the children may be either in or out of the school environment, the interpretation of the curriculum ideas and suggestions in many cases must be carried on through personal contacts and individual planning. In addition to acquiring materials for teachers, consultants often find that they are seeking unusual books and equipment in unusual places for gifted pupils.

Another area of functioning for the consultant is that of administrative arrangements related to the gifted child. Responsibilities here may range from the circulation of special equipment to the search for and recommendation of special teachers for small groups. The consultant finds himself doing such other work as helping teachers to use equipment and facilities in other schools and in industry, arranging bus transportation for special groups, planning special testing programs, and anticipating unusual budget problems.

Interpretation of the special program is yet another responsibility of the consultant. He must keep the entire faculty informed regarding any special program in order to assure its success. He must be ready to meet with parents individually and in groups to plan, answer questions, and meet problems. He must meet with the school trustees and with community organizations in order to interpret the program.

In addition to the duties already listed, the consultant has a multitude of miscellaneous responsibilities. These may involve such matters as school-parent liaison regarding pupil work load; co-ordination of the work of regular and special teachers; arrangement for special extension and correspondence courses for individual pupils; work with community organizations regarding plans for special equipment or scholarships; interpretation of scholarship possibilities to pupils and parents; and the development of plans for pupil and teacher use of museums, industrial facilities, and special community personnel.

In order for a consultant to fill his position successfully, he must have thorough understanding of the individual differences and needs of the gifted child. He should have, in addition, a high level of ability and general education so that he is able to understand and identify learning possibilities that will benefit the children for whom he is responsible. Personal qualities should include boundless energy and ability to work well with a wide variety of people of all ages.

Chapter 17

EVALUATION OF SPECIFIC PROGRAMS

This chapter on specific programs was developed to present information on each type of plan evaluated in the State Study. Certain kinds of data, such as mean achievement of groups and general reactions to programs, have been presented in earlier chapters. This chapter was written to present additional data on achievement, pupil adjustment, and reactions of teachers and consultants that are relevant to one particular plan.

At the end of each discussion of a specific program at the elementary school level, data on achievement and social relationships are reviewed. Achievement data for the junior and senior high school groups are also reviewed, but data on personal-social adjustment are not repeated. These are found in Chapter 15, in the section dealing with the results of the *California Psychological Inventory*.[1]

The evaluations of specific programs are written so that each program may be examined as a unit. No attempt is made to compare one type of program with another. Such comparison would be fallacious because of operational variables such as teacher competence, availability of materials, or class size, to name but a few. Selection of the best program is questionable from the standpoint of practical school needs, facilities, and size. School districts may find that they need to use several programs wholly or in part in order to educate their gifted pupils adequately.

For the purpose of evaluating specific programs, a matched-pair design was used. This design is presented in Table 53. Pupils from the various programs were equated with control pupils on the basis of sex, IQ, chronological age, and socioeconomic status. Examination of the table shows that the groups and their controls are closely comparable on all four variables. This close similarity increases the meaning of achievement differences and other comparisons between the experimental and control groups.

ENRICHMENT IN THE REGULAR CLASSROOM

Enrichment in the regular classroom was considered separately from the other approaches in that no administrative changes were made for the identified gifted child. He was assigned to the normal classroom situation and participated in the usual classroom group. The only variation for him was the assistance given to his teacher by the curriculum

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[1] *Manual, California Psychological Inventory.* Palo Alto, California: Consulting Psychologists Press, Inc., 1957.

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TABLE 53

Summary of Matching Variables Used in Matched-pair Design

Grade level and plan	Number			IQ		Chronological age		Socioeconomic status		
	Boys	Girls	Total	Mean	Standard deviation	Mean	Standard deviation	Upper	Middle	Lower
First, cluster	9	16	25	138.8	8.4	71.4	3.4	7	18	0
Matched control	9	16	25	139.2	9.6	71.5	3.5	12	13	0
First, ungraded	12	6	18	136.7	5.7	70.6	3.2	6	11	1
Matched control	12	6	18	137.1	6.3	71.1	4.2	7	10	1
First, accelerant	6	14	20	139.8	7.3	74.2	2.2	14	6	0
Matched control	6	14	20	139.8	8.6	73.2	3.1	12	7	1
First, enrichment	14	24	38	139.6	8.4	71.9	3.0	14	24	0
Matched control	14	24	38	138.9	8.0	71.2	4.1	18	17	3
Fifth-sixth Saturday class	12	17	29	142.1	7.3	123.6	6.2	8	21	0
Matched control	12	17	29	141.4	7.6	121.6	5.7	13	16	0
Fifth-sixth special class	13	15	28	148.0	12.8	119.6	5.3	26	2	0
Matched control	13	15	28	148.5	12.9	120.3	5.2	17	10	1
Fifth-sixth enrichment	26	20	46	145.1	11.0	121.4	5.6	16	30	0
Matched control	26	20	46	144.7	11.1	120.8	5.9	25	19	2
Fifth-sixth part-time interest	13	19	32	143.2	10.4	122.6	5.5	9	22	1
Matched control	13	19	32	143.1	10.3	121.8	5.3	16	15	1
Fifth-sixth, cluster	20	18	38	144.4	10.6	121.7	5.2	11	27	0
Matched control	20	18	38	144.8	10.6	121.8	5.8	19	18	1

Eighth, sponsor	12	10	22	140.6	10.8	149.1	4.1	5	15	2
Matched control	12	10	22	140.5	10.2	147.9	3.8	9	13	0
Eighth, special class	28	21	49	142.7	8.1	149.6	4.4	37	12	0
Matched control	28	21	49	142.5	8.2	149.0	3.7	25	22	2
Eighth, accelerant	7	7	14	147.6	10.0	150.1	3.2	11	3	0
Matched control	7	7	14	149.2	10.4	150.0	4.3	12	2	0
Eleventh, special class	20	15	35	143.5	7.1	184.7	3.9	22	13	0
Matched control	20	15	35	143.3	7.2	186.4	4.5	17	18	0
Eleventh, independent study	15	9	24	140.3	6.1	187.9	3.8	15	8	1
Matched control	15	9	24	140.7	6.4	187.0	3.9	13	11	0
Twelfth, acceleration	22	15	37	142.7	6.2	197.8	5.6	17	18	2
Matched control	22	15	37	143.0	6.4	197.4	4.4	19	18	0
Twelfth, honors	21	8	29	140.8	5.6	199.0	4.0	9	18	2
Matched control	21	8	29	140.8	5.1	198.6	4.1	16	13	0

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consultant, who assisted in the provision of special educational experiences.

The term "enrichment" required definition in order that the proper educational program would evolve. Enrichment in this study was considered as those educational experiences that would permit a student to utilize subject matter in such a way that he could apply and generalize his knowledge to the fullest extent possible. The kind of learning that enables the pupil to see the relationship of the subject matter at hand to a wider fund of human knowledge and to go on to new discoveries on the basis of his learning experiences was regarded as true enrichment.

This kind of approach to enrichment automatically eliminates the type of materials that provide repetition of already learned data. It means the kind of learning that will enable the pupil ideally to reach any height in a given subject field to which his abilities and interests impel him.

Within the State Study, groups of children were included in enrichment programs at the first, fifth, and sixth grade levels. In many cases, they were the only identified gifted children within their particular class group. The evaluations of the teachers were based upon their experience in providing for this individual in a heterogeneous class during the experimental year.

Teacher Evaluation

Teachers found several outstanding benefits from participating in an enrichment program. They thought that their efforts for the gifted child were beneficial to the entire class and that all of the children gained. The curriculum help given by the consultants and the new teaching techniques they learned were valuable. Another frequently stressed value was the understanding which they had gained of gifted children and their educational needs.

The problems which the teachers listed were related to their frustration in not being able to provide completely for the gifted children in their classes. The three major problems involved the pressure of time and multiple obligations, the need for smaller classes, and the need for a narrower ability range within their classes.

Consultant Evaluation

All three State Study curriculum consultants worked with enrichment programs. The problems which they pointed out are interesting from the administrative and supervisory standpoint.

The consultants found that the large enrollments and wide ability range in participating classes handicapped the teachers in their attempts to individualize instruction. The program, because of the dispersal of the pupils, was time-consuming for the consultants, difficult to supervise, and difficult in terms of real motivation for the gifted.

Because of the widespread location of individual pupils, it was impossible to concentrate special materials at central locations. The lack of time created a problem for teachers who attempted to seek materials. The consultants were of the opinion that extensive library materials and extra planning time for the teachers were mandatory.

Communication relative to planning the program and providing essential information regarding its operation was a major problem. In order that enrichment be of real value, the consultants recommended the training of teachers and administrators in the planning of true enrichment experiences for pupils. They recommended also close communication with parents so that they would understand that special provisions were being made. The latter was especially important because the administrative structure of the program is such as to make it difficult for parents to differentiate it from the usual school program.

Effect on Academic Achievement

At the first grade level, 38 pupils from the experimental enrichment group were closely matched with a like number from the control group. (See Table 53.) The performance of these matched pairs was evaluated in reading and arithmetic in order to assess as accurately as possible the academic effects of enrichment programs. The results are shown in Table 54.

The pupils in the experimental group made highly significant gains in arithmetic beyond those made by the pupils in the control group. The gains made in the word recognition and paragraph reading sections

TABLE 54

The Achievement of Matched Pairs of First Grade Pupils Compared in Arithmetic and Reading—Enrichment Plan

Subject	Year	Pupils in experimental group		F	Pupils in control group	
		Mean	Standard deviation		Mean	Standard deviation
Arithmetic	1958	8.29	2.71			
	1959	14.03	3.22		11.03	2.79
				8.627*		
Word recognition	1958	1.72	.55		1.75	.52
	1959	2.71	.66		3.31	.58
				5.105**		
Paragraph reading	1958	1.66	.36		1.67	.49
	1959	3.81	1.48		2.64	1.08
				7.117**		

* Beyond 1 per cent point.
** Beyond 5 per cent point.

of the *Gates Reading Test*,[2] were significant. Evidence from the achievement tests shows that the academic performance of the first grade gifted pupils was significantly greater than that of gifted pupils within the regular school program.

Review of Other Data

As shown in Table 19, the fifth and sixth grade pupils in enrichment programs also made mean achievement gains beyond those of pupils in the control group. The difference was highly significant.

The sociometric tests which were used before the program and at the end of the experimental year showed that the pupils at the first grade level made highly significant gains in social status. (See Table 45.) Apparently special planning was beneficial to them in their social relationships. The pupils at fifth and sixth grade levels made slight gains, but the gains were not sufficiently great to attain statistical significance.

UNGRADED CURRICULUM GROUP—FIRST GRADE

The ungraded curriculum group combined features of cluster grouping and an ungraded primary class. The 20 children who were identified for participation in this program were selected on the basis of general maturity. The intention of the plan was to give the children highly individualized curriculum opportunities toward the view that they would be placed in third grade at the end of the experimental year, if success at this grade level seemed indicated. The pupils were assigned in three groups, so that the teachers who worked with them had, in effect, a cluster-group situation.

Teacher Evaluation

The three teachers who worked with this plan stated that the curriculum help and in-service training helped them in their appreciation of the educational needs of the gifted and gave them confidence in working with the gifted. They stated that the program allowed the child to progress at his own rate and that at the same time the achievement of the entire group improved.

The teachers reacted to the problems of large classes and resultant time pressure. Perhaps related to the large class was the expressed need for storage space. The problem of relationships with other teachers and interpretation of abilities to parents was also mentioned.

Consultant Evaluation

The consultant who worked with this plan reacted chiefly to the problem of class size. Because of large classes, it was difficult to plan for individuals. The grouping of several gifted children in the classroom increased the difficulty of making proper provisions and created additional time pressure for the teacher.

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[2] Arthur I. Gates, *Gates Primary Reading Tests*, Grades 1.2-5, 1926-58. New York: Bureau of Publications, Teachers College, Columbia University.

Effect on Social Relationships

Data on social relationships were not available for this group.

Effect on Academic Achievement

The pupils in the ungraded curriculum group made highly significant gains in arithmetic and in both sections of the *Gates Reading Test*[3] in comparison with the pupils in the control group. The test results are shown in Table 55. The mean for word recognition was beyond mid-third grade level, and the mean for paragraph reading was close to mid-fourth grade level. On word recognition five pupils were beyond fifth grade level, while six pupils exceeded eighth grade level on the paragraph reading section.

TABLE 55

The Achievement of Matched Pairs of First Grade Pupils Compared in Arithmetic and Reading—Ungraded Curriculum Plan

Subject	Year	Pupils in experimental group		F	Pupils in control group	
		Mean	Standard deviation		Mean	Standard deviation
Arithmetic	1958	9.06	2.58			
	1959	15.83	2.81	33.41*	10.67	2.54
Word recognition	1958	1.73	.64		1.72	.54
	1959	3.69	1.34	11.647*	2.54	.52
Paragraph reading	1958	1.65	.58		1.66	.44
	1959	4.39	2.46	11.95*	2.34	.52

* Beyond 1 per cent point.

Placement of Pupils

At the end of the experimental year, five of the pupils in this group were assigned to third grade. Out of the total group of 20, the teachers recommended that three be accelerated.

Two observers, a school psychologist and the state consultant, studied the children over a period of time in April to evaluate their readiness for acceleration. Evaluations were based upon comparisons with other first grade pupils in relation to size, co-ordination, relations with others, self-confidence, leadership, general information, vocabulary, comprehension and reasoning, original ideas, and reading skill. The two observers agreed independently that 13 of the pupils were ready for acceleration. They agreed that acceleration for several others should be delayed because of their size. All of the pupils were placed beyond mid-second grade in reading and at third grade and beyond in arithmetic processes. One added child (nonaccelerated), who was absent during the observation period, placed at seventh grade in reading and at fifth grade in arithmetic processes. In the opinion of the state consultant, this pupil also was ready for third grade.

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[3] Arthur I. Gates, *op. cit.*

In another primary program in which acceleration was not the planned goal, no children were accelerated despite the fact that five of the group were at or beyond sixth grade level in reading, and seven were at or beyond fifth grade level in arithmetic processes. It seems, therefore, that acceleration does not occur readily despite evidence in its favor, and that school policy and hesitation prevent the acceleration of some individuals who, from all indications, might succeed very well in higher grades.

ACCELERATION—FIRST GRADE

The plan for this program of acceleration consisted of an administrative arrangement whereby 23 first grade pupils were accelerated to second grade. They were placed in heterogeneous class groups within their own schools, and their teachers worked closely with the curriculum consultant to provide for the pupils. The general arrangement, except for the advanced grade placement, was similar to that of enrichment in the regular classroom. The pupils accelerated were, of course, younger than their peers and had had less time in school.

Teacher Evaluation

The 18 teachers who worked with the accelerated pupils reacted favorably to the plan. Individual comments indicated that acceleration was not harmful to the pupil and that he benefited from working up to capacity. The teachers regarded early identification and acceleration in the first school years as a good policy. They stated that the policy helped them to become aware of the fact that pupils can make great progress when teaching is planned in accordance with their needs. A number of the teachers developed better understanding of the needs of the gifted pupils.

The learning of new teaching techniques and the sharing of ideas at in-service meetings were helpful. Several teachers expressed appreciation for the extra materials which were supplied to them, although several also expressed a need for more materials.

The major problems cited by the teachers involved the lack of time for preparation, the need for smaller classes, and the wide range of ability within their groups. These three problems reflect the frustrations of teachers who attempted to provide for individual needs.

Consultant Evaluation

The consultant who worked with this plan stated that the large classes handicapped teachers in their efforts to provide for the accelerated pupils. The teachers needed in-service help regarding the needs of these pupils. The lack of materials and the lack of clerical help also were major problems.

Effect on Social Relationships

Sociometric tests used before the program and at the end of the experimental year showed that the gains of accelerated pupils in social status were highly significant when compared to those of the pupils in the control group. (See Table 45.) The fact that the accelerated pupils were younger and had been accelerated proved to be no problem to them in social acceptance. Rather, they proved themselves extremely adequate in their relationships with their peers.

Effect on Academic Achievement

The accelerated pupils made highly significant gains over the control group on tests in arithmetic and reading. The results of these tests are shown in Table 56. Despite the problems mentioned earlier, the accelerated pupils made striking gains in the two measured areas.

The entire group of accelerated pupils made mean scores close to fourth grade level in word recognition and slightly beyond beginning fourth grade level in paragraph reading. In the word recognition test, seven pupils ranked above middle fourth grade level in word recognition and six were above fifth grade level in paragraph reading.

TABLE 56

The Achievement of Matched Pairs of First Grade Pupils Compared in Arithmetic and Reading—Acceleration Plan

Subject	Year	Pupils in experimental group		F	Pupils in control group	
		Mean	Standard deviation		Mean	Standard deviation
Arithmetic	1958	8.6	3.25			
	1959	16.50	5.21	15.285*	11.00	2.88
Word recognition	1958	1.53	.40		1.65	.46
	1959	3.90	1.03	11.096*	2.63	.56
Paragraph reading	1958	1.51	.21		1.62	.39
	1959	4.28	1.70	10.358*	2.40	.35

* Beyond 1 per cent point.

CLUSTER GROUPING

Cluster groupings, composed of several gifted pupils assigned to one class otherwise heterogeneous, were formed in several school districts of intermediate size. The pupils were taken from several first grades, for example, and placed with a teacher who was interested in working with them. At the first grade level, the classes resembled other first grade groups, except for the presence of a greater number of gifted pupils than might be found by chance. In the fifth and sixth grades, where group tests and cumulative record data were available, some group spread was eliminated through removing pupils who were extremely slow in learning or who had specific learning problems. Class size remained the same as for other classes in the given district. Consultant help and in-service education were provided on the same basis as with other participating teachers.

Teacher Evaluation

A thread of similarity was found in the evaluations made by teachers at all grade levels. The values and problems were consistent.

The teachers described themselves as better teachers because of better planning resulting from participation in the study. They welcomed the new curriculum materials which were made available to them and found the in-service meetings with other teachers interesting and valuable. Several teachers stated that the gifted pupils worked very well together and that the entire class group was stimulated to do better work. The teachers found themselves more aware of the gifted child's needs and capabilities as a result of the year's activities.

Having to do too much with too little was identified by the teachers as the root of a number of problems and difficulties. Several teachers cited the lack of materials. Others stated that they had no time to do the kind of preparation they would like to do. The teachers found the range of abilities within their classes difficult to manage. In several instances they expressed a desire for smaller classes in order to have time to meet the needs of the gifted.

Consultant Evaluation

The problems found in cluster groupings by the state consultants were essentially the same as those listed by the teachers. The consultants mentioned large class enrollment as an impediment to providing for the intellectually gifted. Related to class size were the problems involving lack of time for teachers to make necessary preparations and the wide ability range in the classes. An additional problem evident to the consultants was the lack of materials.

Effect on Academic Achievement

Matched pairs of pupils in the experimental and control groups were compared in arithmetic and reading to determine the effects of cluster grouping on academic achievement. The results of these comparisons are shown in Table 57. Gains made in arithmetic and in the paragraph reading section of the *Gates reading test*[4] by pupils in the experimental group were significantly greater than those of the pupils in the control group. The pupils in the experimental group made a mean gain greater than that of the control group on the word recognition section. The difference, however, was not statistically significant.

Review of Other Data

As shown in Table 19, the fifth and sixth grade pupils in the cluster group made highly significant gains in mean achievement. Sociometric tests used before and at the end of the experimental program showed a slight gain for the fifth and sixth grade pupils who participated in the cluster group plans. The gain was not statistically significant, however. Pupils at the second grade level showed a highly significant gain in social relationships ($p < .01$) (See Table 45). Data were not available for the first grade pupils in this plan.

TABLE 57

The Achievement of Matched Pairs of First Grade Pupils Compared in Arithmetic and Reading—Cluster Plan

		Pupils in experimental group			Pupils in control group	
Subject	Year	Mean	Standard deviation	F	Mean	Standard deviation
Arithmetic	1958	8.56	2.92			
	1959	14.80	4.92		10.64	2.21
				14.836*		
Word recognition	1958	1.64	.48		1.75	.63
	1959	3.28	1.02		2.82	.81
				2.549*		
Paragraph reading	1958	1.56	.92		1.70	
	1959	3.82	1.72		2.73	
				7.701*		

* Beyond 1 per cent point.

PART-TIME INTEREST GROUPS

The fifth and sixth grade pupils who participated in the interest group plan came together from several classrooms in the same school and in one district from two schools. They met for one afternoon each week. The subject matter in the groups was kept flexible and changed in accordance with the interests of the pupils. The teachers who worked with the groups were given additional time for preparation. The pupils' activities included the planning and preparation of research papers, the study of current social problems, learning Spanish, studying the lives of composers, and learning the history of mathematics.

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[4] Arthur I. Gates, *op. cit.*

The state consultant worked with the teacher to provide materials and curriculum assistance. Other qualified persons were brought in occasionally to meet with the pupils in discussions of special topics.

Teacher Evaluation

The two teachers who evaluated this program pointed out that the pupils had been given opportunities that would not have been available in the regular program. An increase in pupil self-confidence and in feelings of worth had been noted. Both teachers thought that their knowledge of subject areas, appreciation of gifted pupils, and enthusiasm for their particular plan increased during the study. One teacher mentioned the need for laboratory equipment and space. The other mentioned an increased awareness of unique abilities and needs in pupils.

The chief difficulty noted in the conduct of part-time interest groups was communication and co-ordination of planning. Both teachers saw the need for constant work with the pupils' regular teachers in order to prevent misunderstandings and to facilitate carry-over of experience to the regular classroom.

Consultant Evaluation

Problems of communication were stressed by the consultant as one of the chief factors involved in the success or failure of the part-time interest group program. Constant vigilance and effort are required to assure understanding and thus support of the plan. Since many persons are involved—regular teachers, administrators, special teachers, and parents—the problems of communication are compounded.

Unless someone is assigned time to work with all personnel, the special teacher faces the task not only of planning for the group but also of coping with attitudes ranging from skepticism to hostility. These attitudes develop unless teachers are themselves closely involved and understand and support the special group activities.

The need for co-ordinated planning and for the assignment of someone to assist the special teacher relates also to curriculum development. Unless responsibility is clearly assigned to someone to assist with curriculum and liaison, it is possible that many persons will concern themselves with the special group, and the special teacher may find himself in the uncomfortable predicament of having too many supervisors.

Review of Other Data

On the basis of statistical comparison with gifted pupils in the control groups, the pupils in the part-time interest groups showed no significant gains in academic performance. (See Table 19.)

Sociometric tests were used in both the regular classroom and in the special interest groups to determine the effect of the special program on the social relationships of the pupils. The pupils showed a pattern of slight gain in the regular classroom and slight loss in the special groups, but neither pattern was significant. The sociometric tests revealed no significant change in social relationships, either positive or negative, in either the regular classrooms or in the special part-time group. (See Table 45.)

SATURDAY CLASS

The Saturday class evolved from preliminary but detailed plans which had been developed by staff members of the office of the Stanislaus County Superintendent of Schools. These persons had visualized the Saturday class as a means for enriching the education of rural pupils and had formulated plans for a research program based upon the Saturday interest group idea.

The general framework which they had developed was utilized by the State Study staff in establishing the structure for the Saturday class groups. A number of developments, of course, came from the actual planning of and participation in the program.

The plans for the Saturday class were initiated through a survey of pupil interests. Approximately one-third of the class group indicated well-defined subject interests. The staff compiled a list from the pupils' expressed preferences, submitted it to the other pupils, and asked for two choices. As an outcome of this survey, small groups were established in art, creative writing, and literature, physical sciences, mathematics, Spanish and German.

Parents were contacted regarding their children's participation in the program. This is important for any program but especially so in this instance because of transportation problems. Even if this had not been necessary, participation in such a program creates a certain amount of inconvenience for the family adults. Only one parent of those contacted declined to participate. The reason given was the possibility of employment for herself in the near future.

The two-and-one-half hour session of the Saturday class, scheduled from 9 to 11:30, was divided into two periods. Each child participated in two of the subjects listed during the morning, with an intervening play period.

The consultants who worked with the pupils came from varied environments. Three of the six were high school teachers, two were consultants in the office of the county superintendent of schools, and one was a layman with a lifetime background of foreign language. They were assisted in many ways by the state staff consultants and by personnel from the office of the county superintendent of schools.

Content for the Saturday classes was such that the pupils, parents, and consultants were encouraged to range far afield in the use of content and materials. The language consultants, for example, spent time at the Monterey Army Language School studying the methods employed in the army program. Parents made special trips to take pupils to such demonstrations as one given by the high school Science Club. Consultants and pupils took trips to many places, among them the San Francisco Planetarium; utilized high school laboratories; and developed science materials for themselves such as a mercury barometer. The consultants used many special films, tape recordings, and phonograph records in their activities. The program consumed much time in planning and preparation not represented by the actual class attendance and involved some unique expenditures of time and money not reflected elsewhere.

Consultant Evaluation

The evaluations of the consultants for this program were developed in two ways because of the diversity of subjects taught. One type was subjective evaluation by the consultants of the program and their phase of it; the other was the evaluation of pupil progress through examinations, which the consultants constructed and administered. Examinations were used in science, mathematics, and foreign languages. Pupils' progress in art and creative writing was demonstrated through the products themselves.

The consultants spoke of the "personal lift" and self-improvement which they derived from the program. They sensed a great increase in pupil knowledge as a result of participation and stated that their own teaching skill had improved.

The problems were related chiefly to time. The consultants recommended that the class meet during the week so that they and the pupils would not have a six-day work week. The Saturday meetings caused them to miss in-service meetings on several occasions. Two stated that class meetings oftener than once weekly would be beneficial.

The examinations used in the several subject areas revealed that much growth had occurred during the 48 hours of instruction. The conversational vocabulary in German was found to range from 440 to 492 words and phrases. In Spanish the conversational vocabulary ranged from 557 to 769 words. The evaluations in both subjects were based upon actual count of verbal responses to a list of questions.

In mathematics and science, pupils worked with algebraic concepts and general science content commonly found at the high school level. Learnings were extended beyond the usual content of these courses to include other number bases and independent experimentation. On the final mathematics examination, the 12 pupils made scores ranging from 16 to 50 out of a possible 58. The mean score was 35, with approximately two-thirds of the total scores within 9 points of the mean. Out of a possible 45 points in science, the range of correct responses was 30 to 39, with a mean of 35, and two-thirds of the scores within 3 points of the mean. These scores demonstrated a high level of performance in the two subjects.

State Consultant Evaluation

The state consultant reported that many of the pupil participants had developed new and wholesome self-confidence, increased interest in learning, and an attitude of inquiry. Working with others of like ability had added to their tolerance and self-understanding. Many of the pupils had experienced much satisfaction and made great social gains through participating in the planned recreation program.

The enjoyment of learning in many cases carried over to the regular classroom, according to reports of teachers. The children in the regular classes seemed to have no resentment of the pupils who had Saturday class experiences. The regular classroom teachers who had been oriented to the study worked closely with the consultants and to some extent utilized the Saturday learnings in their classrooms.

The major problem reported to the state consultant was the scheduling of the class on Saturdays. The participants, both child and adult, indicated that they would like to have the classes held during the regular school day.

The chief problem encountered by the state consultant was the need for constant in-service effort with both the consultant group and the regular classroom teachers in order to ensure liaison and proper educational procedures. The time spent here and in the acquisition of materials or arranging for physical facilities was great.

Attendance

One of the tests of a successful voluntary program is attendance. When pupils are not required to participate in a program and could drop out at any time, a high attendance ratio serves to indicate that the program is interesting and worth while. The consultants, therefore, were asked to keep a continuous record of pupil attendance and to note reasons for any absences.

Out of 928 possible individual absence units, 44 absences were recorded. This represents 4.7 per cent of the total. Illness accounted for 32 of the 44 absences, with only 1.2 per cent for other reasons such as being out of town, transportation difficulties, conflicting activities, or, in one case, visitors. In other words, exclusive of illness, the attendance for Saturday class groups was 98.8 per cent.

Review of Other Data

The academic achievement of the Saturday class participants was evaluated on the basis of average gain on the six tests of the STEP battery.[5] In comparison with a control group, they made a highly significant gain in academic achievement. (See Table 19.)

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[5] *Sequential Tests of Educational Progress,* 1956-58. Princeton, New Jersey: Co-operative Test Division, Educational Testing Service.

To assess the effects of Saturday class participation within the total school life of the pupil, sociometric tests were conducted in the regular classroom. From the data gathered before and after the experimental year, it was found that the Saturday class pupils made a significant gain in social status. (See Table 45.) From the standpoint of social recognition and acceptance, it must be concluded that the Saturday class attendance had been beneficial to the participants.

SPECIAL CLASS—FIFTH AND SIXTH GRADES

The special class consisted of 32 gifted pupils who were brought together from three neighborhood schools. Like any other elementary school group, they were together during the entire school day for all school activities.

The class work was organized in three ways: (1) small groups were formed on the basis of academic interests and ability; (2) the total class worked together in regular subjects such as social studies and on special topics such as the study of great artists or the development of language; and (3) individuals pursued distinct, long-range research interests.

The flexibility of organization meant that the pupils were free to go as far as they wished with a given topic of interest. They prepared research reports, therefore, on such diverse subjects as the history of time, the vocabulary of geometry, the history of calendars, the origin of measures, and the lives of great men from Euclid to Einstein. Small group activities led to other special studies. For example, two girls formed a chemistry club, kept detailed records of their research and experiments, and listed their self-selected homework assignments. A boy and a girl did a research report on rabbits, complete with a detailed description of their life cycle and habitat, a diary of six rabbits, and photographic illustrations of their growth and development.

Many of the individual research activities grew out of total group work on such subjects as the development of law and the historical development of democracy. The study of early cultures led to a study of Latin, Greek, and French, and the interrelationships of these languages and English.

Both group and individual activities were carefully scheduled. The pupils worked closely with the teacher on their plans and established weekly schedules for home study and research. Classroom activities were planned with individuals and small groups to ensure optimum use of research materials, viewing centers, and science equipment.

Teacher Evaluation

The teacher of the group thought that she had profited greatly from the experience in her strength and skill as a teacher and in knowledge of subject matter. Her appreciation of gifted pupils had increased markedly as had her enthusiasm for the special class approach to teaching gifted pupils. She made the following statements about the values of the program both to her pupils and herself:

> The whole class plan has been a successful way of challenging gifted children academically and guiding their growth socially. Their satisfied, enthusiastic manner is reflected in their behavior and growth. I have been intellectually stimulated throughout the year. I have also felt gratified by the appreciation the children have shown for the opportunity to participate in the program. I have also learned to appreciate the great scope of abilities possessed by individual children—as opposed to isolated abilities.

The teacher cited class size and time pressure as posing the two major problems. She needed time for extra activities resulting from her participation in the program and for interpretation of the program to educators and community members. A smaller class would have provided opportunity for consistent evaluation of pupil growth and for individual work with pupils.

Consultant Evaluation

The consultant considered the work load of the special class teacher unrealistic. Teaching 32 gifted children meant that the teacher was confronted with 32 pupils who had highly diverse and specialized interests, needs, and abilities. Meeting their needs required that the teacher and available consultants constantly search out and supply varied materials for them. The time pressure for preparation, even with more than the usual amount of consultant help, was excessive.

Despite the unrealistic work load, the class was highly successful, according to the consultant. The pupils enjoyed their activities and each other. The teacher presented opportunities for learning so successfully that the pupils were able to work far beyond the usual curriculum in scope and depth.

Review of Other Data

The special class made a highly significant gain in academic achievement, far beyond that attained by the gifted in the control group with whom they were matched (Table 19). In this area, the program was decidedly beneficial. The gains made by this particular group were the most striking of any at the fifth and sixth grade level.

Only limited data on social relationships were available for this group. These are reported in Table 45. The findings are inconclusive, suggesting that the program had little effect on the social relationships of the pupils. While the program produced no marked positive change, according to the limited findings, neither did it have negative affects. Reports by the principal, parents, and teacher suggest that many pupils benefited in their relations with others. The opportunity for association with others of high ability led to realistic self-evaluation and respect for others.

JUNIOR HIGH SCHOOL ACCELERATION

The junior high school acceleration plan included a group of 25 pupils who were in the ninth grade during the experimental year. They were a segment of a larger group of 80 who had participated in the school district's acceleration plan since they completed the sixth grade.

The plan involved the study of subjects contained within the regular junior high school curriculum during a two-year period rather than the customary three years. The procedure was essentially a curriculum acceleration plan through the organization of summer school into the total school pattern, and did not allow for the "skipping" of any subjects. "Time compression" is regarded as a better term for the program than "acceleration," [6] although a year's time was saved during the three-year span.

The state experimental group of 25 was part of a total group of 50 attending one junior high school. The 50 pupils had been selected on a somewhat different basis than those within the State Study. Of the total number, eight had IQ's below 130 and ranging down to 113 on the Stanford-Binet.[7] Not all of the pupils had been given individual tests. While all of the pupils who were within the state experimental group had IQ's at 130 or beyond, it is important to think of them within the context of the total group. When teachers are asked to evaluate a plan, they naturally think of the total plan as it operates within their school. Differentiation of one group from another within a plan is difficult, yet there are differences. One example that is an important basis for evaluation is the matter of grades. The eight pupils with IQ's below 130 received 16 C's, or 2 per student. The 42 pupils with IQ's above 130 received a total of 37 C's, or less than 1 *C* per student. Yet the practical tendency would be to evaluate the "gifted" on the basis of the total 53 *C* grades. This is pointed out merely to provide a frame of reference for the materials that follow.

Teacher Evaluation

The teachers stated that the curriculum acceleration plan provided challenge and motivation to able pupils. Just two said that they were learning to appreciate gifted pupils. Since the teachers had been involved in the plan for several years, this expression by only two out of the 15 teachers is to be expected. The "learning to appreciate" stage had been passed by many.

The teachers recommended that the pupils' backgrounds be carefully evaluated prior to entry into the program and that pupils be chosen in the seventh grade rather than in the sixth grade. Several stated that the classes were too large and that the program had greatly increased their work load. Three expressed the belief that the curriculum should be accelerated and not the pupil.

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[6] John Woodruff, "A Report on the Pilot Acceleration Program Conducted at Horace Mann and Wilson Junior High Schools by the San Diego City Schools, December, 1958" (mimeographed).

[7] *Ibid.*, pp. 15-19.

Consultant Evaluation

The consultant reacted to the problems of communication and homework. The involvement of many teachers in the program multiplied the need for constant communication regarding plans for individuals. The advanced curriculum work in which the pupils were involved created problems relative to balance of activities and excessive homework for some pupils.

Review of Other Data

The pupils in the junior high school acceleration program had a combined program of summer school and regular school classes. They were assigned to 15 different teachers in a wide variety of subjects, with no special emphasis on given subjects. Therefore, their academic achievement was evaluated on the basis of mean achievement rather than in subject areas.

The accelerated pupils who were assigned to the state experimental group had a mean IQ of 153.4. Only four out of the 25 had IQ's of less than 148. These ranged from 130-139. When these pupils were matched with the pupils in the control group, it was possible to match only 14 of the 25 because of the high IQ level within the total experimental group. The group results reported for this plan, therefore, are on a smaller and less representative number than for the other plan.

No significant differences in achievement were found between the matched experimental and control groups. This should be evaluated in relation to the necessarily small group and in relation to control contamination. The members of the State Study staff were given outlines for advanced courses in mathematics and science, for example, in which the pupils in the control group were involved. This means, in effect, that the pupils in both the experimental and the control groups were participants in special programs.

SPECIAL CLASSES—EIGHTH GRADE

Special classes in mathematics, English, and social studies were established by a city school district. This block of courses was planned by the school district personnel so that the pupils would be together for a large segment of the day and so that staff assignments would be facilitated. The pupils were selected by district personnel on the basis of interest and competency in the three subjects. The classes were composed entirely of gifted pupils.

Teachers who worked with the special classes were given an extra period during the school day for preparation. School district consultants gave extra time and assistance to the special teachers.

Teacher Evaluation

The seven teachers who worked with the special classes found the extra preparation time allotted to them and the extra materials which were supplied of great benefit. They appreciated the opportunity to work with and plan for gifted pupils and found that they learned a great deal themselves in utilizing an advanced curriculum. The sharing of ideas with other teachers was helpful to them.

The majority of teachers reacted against the basis for selecting the pupils. According to them, pupils should be assigned to special classes subject by subject, in order to insure complete interest and background.

Grades

The grades given by the teachers in the special classes are another index of the pupil performance. On a five-point scale, with $A = 4$, $B = 3$, $C = 2$, $D = 1$, and $F = 0$, the pupils made better than a B average for both semesters. Table 58 shows the combined averages in the three special class subjects for both semesters.

TABLE 58

Combined Grade-point Averages for Two Semesters in Special Classes—Eighth Grade

Period covered	English	Social studies	Mathematics
First semester	3.63	3.58	3.20
Second semester	3.60	3.59	3.21

Consultant Evaluation

The special class plan had been operative within the school district for some years and was well accepted by the district personnel. The use of blocks of three subjects made it difficult to have the flexibility required to meet the other interests of pupils. The wide range of abilities and interests within the gifted group made it necessary for the teachers to devote much extra time to planning and preparation. The extra period allocated for teacher preparation and extra materials were helpful here.

The grouping of pupils and assignment of a corps of teachers to them meant that in-service contacts could be made on a more practical and more economical basis than if the pupils had been assigned throughout the school. The teachers were more inclined to plan a curriculum that was realistic for the pupils than they would have been had the pupils been assigned to regular classrooms.

Review of Other Data

As shown in Table 19, the eighth grade pupils in special classes made significant gains in mean achievement over the gifted pupils in the control group. The difference was significant beyond the 5 per cent point.

COMMUNITY SPONSOR PROGRAM

The community sponsor program, in which an adult well qualified in a given subject maintained regular contacts with an eighth grade pupil who had similar interests, has had a long history. All the great teachers in early educational history employed this method, which is essentially one of individualized pupil-teacher interaction. Some of these teachers met with individuals or small groups to carry on discourses on topics of mutual interest. Others relied on correspondence to answer in great detail the periodic questions of young people interested in their particular fields. The common essence, whether through personal contact or correspondence, was regular contact with content structured specifically to meet the learning interests of the pupil.

The community sponsor plan is one which is particularly suited to meet the needs of gifted pupils with well-defined special interests at junior and senior high school levels. When pupils have spent several years of study in a subject or have chosen a field even tentatively, for their life work, it is inspiring to them to meet with an adult who is a success and an authority in the given field of interest. Through contact with the community authority, they are able to explore areas of learning which would be closed to them otherwise and to use facilities unavailable in the schools.

The approach utilized in the State Study involved personal contact and a variety of other approaches, including the use of ham radio and tape recordings. No regulations regarding type of contact were established; sponsors were encouraged to make regular contacts and to utilize the types of contacts that were the most productive for them.

Organization of the Program

The development of the community sponsor program involved community effort and was planned and co-ordinated by the State Study staff.[8] It involved the preparation of lists of carefully selected sponsors, communication with the potential sponsors to determine their interest in participation, and interviews to determine suitability of a sponsor for a particular pupil. It also involved the identification of gifted eighth grade pupils, a determination of areas of special interest, and determination of interest in participation and making contacts, both group and individual, with adult and child participants to ensure success in working together. The contacts ranged from individual adult-child interviews and communications on how to write interesting letters to meetings with the adults to study and analyze the characteristics and needs of their gifted pupils.

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[8] The staff research consultant was given especially valuable help by Mrs. Charles Goode of El Cajon, member of the State Study advisory committee, who arranged for the participation of local members of the American Association of University Women in the selection of possible sponsors. Assistance was also given by members of the Kiwanis and Lions clubs, by local school officials, and many others.

Finally, the preparatory phase involved letters of explanation to the principals and teachers of the participating pupils so that they would know of the program, the particulars of the program as it was planned for their pupils, and plans for co-ordination of efforts. Personal contacts were made periodically by the State Study staff members with regular teachers and with parents to ensure proper communication.

Selection of Sponsors

The community sponsors were carefully selected from previously prepared lists. They were chosen on the basis of identity of interest with those of a potential pupil, on the basis of recommendations of community adults, and on the basis of interviews with both State Study staff members. Thorough familiarity with the subject of interest was an important requirement.

The caliber of the sponsors is partly reflected in their academic training. Of 18 persons who filled out personal data sheets, eight had earned the Ph.D. degree, and five held the Master of Arts degree. The remaining five persons in addition to academic work had taken special training pertinent to their applied vocational or avocational fields. The high ratio of persons with advanced and specialized training who were willing to serve as sponsors for gifted pupils in this rural area holds hopeful implications for extending the educational experiences of the gifted in all parts of California.

Further evidence of the rich backgrounds of the sponsors is derived from their data sheets. Notations such as "cum laude graduate," "Sigma Xi," "fellow of the China Foundation for Promotion of Education and Culture," "Phi Beta Kappa Alumni Scholarship," "National Science Foundation Fellow," "graduated with honors," "took private classes under famous artists," "Upjohn Research Fellowship," "author of several books," "Alfred P. Sloan Foundation Fellowship," "received Princeton Bicentennial medal," and "listed in Who's Who in America" attest to the quality of adults who themselves are scholars and are interested in the educational welfare of gifted individuals.

The data concerning academic training and scholarship are given to emphasize the kinds of competencies important in the sponsor. Scholastic attainment is not coterminous with success in teaching gifted children in and of itself, of course; other qualities and attitudes are important. Nevertheless, thorough knowledge of a subject is a necessary requirement for awareness of its teaching possibilities.

Subjects Studied

The subjects studied were determined by the pupils' interests. Typically the pupils went far afield in their exploration of topics related to their subjects. One pupil who chose Latin read extensively on Roman culture. Another who expressed an initial interest in geology also explored entomology and chemistry. Three pupils who worked with the same sponsor in studying botany and general science were given new awareness of the interrelatedness of knowledge.

The areas of mathematics and science were selected by 19 of the 26 pupils. Of the remaining seven pupils, one girl chose architecture and another painting; two girls chose Latin and French; one boy selected the field of athletic training; two pupils decided on speech and history. In almost all cases, the records show that the learnings were wide in scope.

Content of Courses

It is obvious that the content of each pupil's learning experience cannot be detailed here. Some of the essence may be noted from an examination of the following extracts taken from various documents. In some cases the materials reveal the scope of the learnings to which the pupils had access; in others the many valuable personal contacts which they had are apparent.

From a sponsor's letter to the curriculum consultant:

> Since the beginning of December Y__ and I have met every Saturday afternoon for an hour and a half minimum of French. She is a very apt pupil and completely relaxed while she is working with me. We have much in common and we find ourselves both particularly interested in how words came to be chosen to express certain ideas. She is fascinated by such phonology and I exploit her interest to the maximum. We have also found it natural to relate language progress to various changes in civilization and technology. Seems odd, quite uncommon to the routine teaching of a language, but oh so natural in its occurrence! We are both delighted.

From a sponsor's letter of response to one from his pupil:

> First, a comment on your letter of November 14. It was excellent and accurate. Your proverb becomes an etymological exercise if you study the *derivation* of the words:
>
> meta-: beyond–morphosis: change
> igneous: pertaining to fire
> proto-: first–zooic: life
> bryo-: moss–phyte: plant
>
> This brings up a little additional knowledge of words. I threw in Coleoptera, Lepidoptera, and Diptera (which are orders of insects) because I wanted you to see the relationships in their names. You might have noticed that each name ended in -ptera, which means wings; therefore these insects have been classified into orders on the basis of the kinds of wings they have. Those with leathery (coleo) wings are beetles; those with two (di) wings are flies; those with membranous (hymeno-) wings are ants (which have such wings in their sexual or flying stage) or bees, and those with scaly (lepido-) wings are butterflies.

Some other orders of insects:

Plecoptera	folded wings	stoneflies
Orthoptera	straight wings	grasshoppers
Neuroptera	veined wings	lace wings
Isoptera	equal wings	termites
Hemiptera	half wings	true bugs
Homoptera	whole wings	aphids
Trichoptera	hairy wings	caddie flies

The taxonomists almost went wrong when they named the fleas Siphonoaptera. Siphon means a tube and it applies to the mouthparts not the wings. You remember "apterous" means without wings. So, Siphonaptera are wingless insects with a tube-like something which we just have to remember belongs to the mouth.

From a sponsor's letter to the curriculum consultant:

I have enlisted the help of two other men. One is Mr. A___ who has gone with me to visit J___ and his family. Mr. A___ has a great deal of technical skill, having had several years in radio in the Air Force and several years in repair work as a civilian. . . .

The other man is Mr. B___ who has kindly offered his amateur radio station and his time, to be used as a means of conversing with J___ on the 40 meter band from my station. . . .

I might point out that short wave radio is going to prove very effective in reaching isolated gifted students like J___ all over the United States. We will be able to hold our meetings for as long as we wish and as often. There are no toll charges on short wave radio or time-consuming expensive automobile trips . . .

From a pupil's letter to his sponsor:

Last Saturday, the 6th, I got VP5EM, a ham in Jamaica, on 15 meters, and on the 7th, YN1JR, Nicaragua.

After our QSO ended I went to WA6AGZ, and saw his rig. He has an SX-99 and a Globe Chief 90 with a Heath kit V.F.O. He is planning to build the transmitter I am building, for a standby rig . . .

I have mastered 2½ lessons of the code records. I have also read through page 46 in the handbook.

From a sponsor's letter to his pupil:

As the Vocational Guidance chairman of the Kiwanis Club, I have been very pleased that the Board of Directors of our club allowed me to include in my budget for this year the Vacuum Tube Volt Master kit which you are now in the process of assembling. The Kiwanis Club has always been interested in vital youth activities and have been interested in your work in connection with the State Department of Education. . . .

Well, how does it feel to have passed your Novice Amateur license test? I did not need to ask, for I know. When I passed my novice test I felt like I was walking on cloud nine! You have now established your first official recognition with the Federal Communications Commission as having obtained the required qualifications necessary to enjoy the privilege of certain types of radio communication. This step is just as important as the equipment you have built, for without it you would not be able to intelligently operate it. You could

> compare your license to becoming a citizen of the United States, in a way. One must first learn the laws and how democracy functions. It is the same with the great fraternity of radio hams . . .

From a log book of sponsor in botany and general science:

> All three youngsters on field trip to Salt Springs Valley. Dr. G__ and Dr. C__ of the junior college joined. Picked kids up from school about 11:30-11:45 a.m. Left J.C. about noon—returned about 6—delivered kids to their homes. Highly successful trip—kids will make a report of the trip next Saturday . . . J.C. instructors were impressed by the botanical knowledge the youngsters displayed. I was proud of them. On May 2nd each of the three youngsters will have received 50 (fifty!) hours of instruction.

Evaluation by Sponsors

The sponsors were encouraged to evaluate their pupils by several means. These included formal examinations, written summaries of work covered and opinions regarding the quality of work, and tape-recorded interviews. Most of them resisted the formal examinations because, as they pointed out, the content which they had covered extended into many subject fields. A few courses, however, could be evaluated in this way.

Of the 26 pupils who participated in the program, 25 had highly successful experiences. Only one failed to maintain interest in her chosen subject, according to her sponsor. The program, therefore, on the basis of proportion of success, must be judged effective.

The following results cited by sponsors were derived from formal examinations:

1. Student A did very well on a chemistry quiz at the college freshman level. If the experiment is successful to the extent that other states will make a similar effort to take care of their gifted children, I will feel that my time has been far from wasted but has indeed been amply rewarded.
2. Student B successfully completed the equivalent of one semester of high school Latin.
3. Student C completed an algebra course and made an *A* grade on the college algebra final examination which he took with the college class. He also completed a University of California correspondence course in high school geometry with a grade of *A*. (This pupil is athletic, popular with his peers, plays five instruments well, composes music, is generally an excellent student, and is highly interested in science.)
4. Student D scored 99 points out of a possible 100 correct on a standardized French test covering the first ten lessons in *Nouveau Cours Pratique*.

The following comments came from letters and taped interviews:

> I think he is a very smart boy. He reads a lot and he thinks a lot. I think he is going to be a very good scientist if he has the opportunity to do so. . . .

> Yes, he not only read the books you assigned to him, but went to the library and read for himself. He is really well motivated. He reads really good books, and by reading those books his interest in science has increased . . .

> They are excellent, eager to learn, pleasant to work with, very alive. We have good discipline, but they are healthy youngsters. They kid a lot and play around. They are normal, real youngsters. They have fine intelligence, but are real children. They have many talents. T___ bakes cookies, had talent in playing the piano. These children are well rounded, wonderful . . . There were no absentees at all. All of them were eager to be in the class and on field trips all the time. No coaxing. Great motivation. They set their own pace and met regularly every two weeks.

> Even after 33 years of public school teaching all the way from the second grade to the twelfth, I am frankly surprised at what an accelerated student with a little encouragement and direction can do. I have one thirteen-year-old eighth-grader who can do formal proofs in geometry. In more than 25 years of teaching geometry to tenth, eleventh, and even twelfth graders, I have encountered many who could not, or did not, try hard enough to master formal proofs.

> This is the end of the "quarter term." It seems that a lot of progress has been made—the youngsters are still as eager as ever to learn—the parents seem satisfied. I myself am quite happy.
>
> True, it takes a lot of my spare time (25 per cent of my week-end time) but it seems worth the effort—helping build the future of the cream of the crop of the coming generation seems more important to me than working at home (painting the kitchen!) or on my farm (pruning grapes, spraying trees, and running a tractor).

The sponsors mentioned other kinds of values in the taped interviews. They pointed out that the program has infinite values for vocational guidance. They stated that their own appreciation of gifted children and an understanding of the resourcefulness and intelligence they possess had come from the experience. They estimated the chain of contacts with adults and interested youth had been beneficial to the pupils and that an understanding of the interrelatedness of knowledge had resulted.

Consultant Evaluation

The curriculum consultant observed many values in the program. The pupils had developed confidence, had learned to follow through with projects, and had had an opportunity to get into interesting subjects. Their appreciation of the importance of a college education had grown. Several pupils had made decided improvements in such areas as spelling and English usage through the influence of their sponsors. The parents reported to the consultant that the association of their children with adults who respect learning had served to engender similar attitudes in the children.

Problems that arose were resolved on an individual basis. There are a number of potential problems, however, such as unrealistic choices of interest, lack of background, the need for meeting changing interests, the necessity for balanced weekly schedules for pupils and adequate communication among those involved.

Review of Other Data

As shown in Table 19, the pupils in this program made highly significant gains in mean achievement. Despite the fact that a number of them studied areas not measured by the STEP tests,[9] the comprehensiveness of their studies apparently had some influence on their total performance when compared to that of gifted pupils in the control group.

INDEPENDENT STUDY—ELEVENTH GRADE

The independent study plan was developed several years ago by a school district so that teachers could work on a flexible basis with their more able students. The subjects and research or discussion periods during the week were alternated to allow students to work in total class groups, in small groups, or individually, and to have special conferences with their teachers. The teachers involved in the program worked together to co-ordinate offerings and to balance weekly requirements for their students. Teachers were assigned in pairs to class groups so that one teacher was free for conferences on an alternating schedule. The participating teachers were given extra compensation for their work.

The program had the advantage of close individual attention to student needs. Classes were smaller than the average, and the teachers thus were able to devote time to the special needs of each person. They used the time for co-operative planning of assignments, for planning of home-school schedules, and for conferences with students and parents.

The thematic approach to learning was used whenever possible. Every effort was made to develop generalizations and an appreciation of the interrelatedness of knowledge. For example, English classes prepared seminar discussions on such concepts and ideas as the interdependence of men, the meaning of American freedom, the search for truth in all fields, the moments of joy in a man's life, and the beneficial developments which have resulted from man's struggle for existence.

Special efforts were made by school personnel and by the study staff to work co-operatively with parents, other teachers, and students on problems of work load, grading, and weekly time schedules. To this end, staff meetings and meetings with parents were held periodically.

Evaluation by Teachers

The teachers within the independent study plan found the extra counseling time assigned to them beneficial in their work. They appreciated the smaller classes, but one teacher stated that they were not small enough. The plan was regarded as a good one for small schools, one which provided incentive for students, and preparation for college through enriched learning.

Most of the teachers stated that they had gained increased appreciation of gifted students through the study. The subject knowledge that teachers had acquired in their association with the program had benefited other classes. They had realized the need for constant study and had improved as teachers.

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[9] *Sequential Tests of Educational Progress, op. cit.*

The teachers recommended that more time be given to teachers for research, preparation, and evaluation. They needed more time for counseling as well. The management of the program proved difficult for them, even with the reduction in class size.

Consultant Evaluation

The consultant reported that since a high level of performance had been expected from the students, the quality of their work had been excellent. They had learned how to study and how to do independent research. Their work had dealt with ideas in the various subjects. They had been freed from repetitive routine to proceed at individual rates, and the result had been an increase in interest. They had learned to budget their time and had improved their study habits.

The program had been valuable to the students on a personal basis as well. They had learned of their own abilities and had developed a measure of self-confidence. Parents and teachers reported that intragroup competition had been stimulating to the pupils. Because they had learned that others also had abilities, some students had lost attitudes of smugness and conceit.

Problem areas identified during the year pertained to homework, the need for teaching research skills, and the student's need for assistance in budgeting time. Parents misunderstood some of the structured aspects of the program and questioned the use of assignments in "independent" study. Teachers experienced certain problems regarding conflicting assignments or examinations and saw the need for closely co-ordinated weekly schedules.

Grades

The students in the independent study program maintained a high level of academic achievement in both the special study areas and in their total high school program. A summary of their grade averages showed that the grade-point average for independent study in American literature and English was 3.59 (between *B* and *A*); for the independent study in United States history, 3.03 (*B*). In their regular classes, the independent study participants made a grade-point average of 3.42—again better than a *B*.

Review of Other Data

The independent study group made a highly significant gain over the gifted students in the control group in mean STEP [10] achievement. The difference was significant beyond the 1 per cent point. (See Table 19.)

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[10] *Sequential Tests of Educational Progress, op. cit.*

SPECIAL CLASSES—ELEVENTH GRADE

Special classes were established in English, history, algebra III, and trigonometry within two high schools of a city district. The classes were planned as an English, history, and algebra unit for the first semester, and as an English, history, and trigonometry unit for the second semester. The students were selected by district counselors and were grouped in the courses on the basis of interest and ability in the three subject areas, after preliminary identification on the State Binet IQ criterion. All of the students in the special classes were gifted according to the State Study definition.

The students were grouped into blocks and were assigned to special teachers. These teachers were given an extra period during the day for preparation. Special consultant time and special materials were provided for the teachers.

Teacher Evaluation

The teachers indicated that they had improved as teachers during the experimental years. They stated that the curriculum had been enriched and that through the provision of added materials they had been able to explore new fields. The release of teachers from extraneous duties and the provision of extra time for planning had been helpful. Added counselor help had been beneficial to the students.

The teachers recommended careful selection of students and stressed the need for careful determination of interest on the part of the students before they were enrolled in classes. They advocated that teacher judgment, student motivation, and past achievement be considered in selection. Important problems mentioned by the teachers were those caused by large classes and lack of materials.

Consultant Evaluation

The extra period for planning which was made available to the teachers was helpful to them, according to the consultant. It meant that they were able to furnish added materials and experiences and to individualize activities somewhat, despite the class-size average of 33 students. The class load was heavy, however, and hampered the teachers in many ways.

The consultant regarded the selection of teachers for special classes as being of paramount importance. The two needs for successful special class teaching were identified by the consultant as thorough knowledge of the subject matter area and a deep understanding of human relations. According to the consultant, the successful teacher recognizes that the establishment of special classes does not eradicate wide individual differences in students, and consequently he makes some provision for such differences.

Grades

Subject grades were available for special class participants only in the special class subjects. As Table 59 shows, the students made a good record, with a total over-all rank of *B*. The grades showed a slight decline during the year despite the fact that the students in these groups made a significant gain in mean achievement as measured by the *Sequential Tests of Educational Progress.*[11]

TABLE 59

Combined Grade-point Averages for Two Semesters in Special Classes—Eleventh Grade

Period covered	English	Social studies	Mathematics
First semester	3.58	3.57	3.07
Second semester	3.05	3.34	2.95

Table 60 shows that at least part of the decline in grade-point average depicted in the previous table resulted from markedly lower grades being given to one class. It is interesting to note that the three teachers of Class Y gave grades that resulted in identical averages the second semester. The problems that caused the decline in teacher estimate of performance are complex and perhaps difficult to identify, but their existence points out the need for constant, close contact with teachers by supervisory consultants so that the problems may be eradicated.

Review of Other Data

The special classes at the eleventh grade level made highly significant gains over the control groups in mean achievement as measured by the STEP tests.[12] The difference was significant beyond the 1 per cent point.

HONORS CLASSES

The honors classes which were evaluated within the State Study had been in existence within the participating districts for a number of years. The subject areas of mathematics and physics were part of a number of honors offerings within these districts. The combination of mathematics and physics was chosen because of the opportunity to identify a relatively large number of gifted honors students who had enrolled in both subjects.

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[11] *Sequential Tests of Educational Progress, op. cit.*

[12] *Sequential Tests of Educational Progress, op. cit.*

TABLE 60

Grade-point Averages in Special Subjects for Two Special Classes

Group	English		Social studies		Mathematics	
	First semester	Second semester	First semester	Second semester	First semester	Second semester
Class X	3.86	3.30	3.97	3.88	3.15	3.12
Class Y	2.91	2.77	3.18	2.77	3.00	2.77

The students in the honors classes were not all identified as gifted according to the State Study criterion. Some of them had been placed in the groups on the basis of past achievement and performance on screening tests in the particular subject.

A course work in the honors classes was equivalent to that at college level. The students used advanced texts and prepared special projects and reports. They were given access to special books and equipment which were rotated from school to school. Special speakers, mainly physicists from industry, met with the classes, and tours of selected industries and laboratories were provided for small groups on Saturdays. The students also took part in regular laboratory nights at the neighboring state college.

Teacher Evaluation

The teachers approved of the subject combination of mathematics and physics because it permitted block scheduling and co-ordinated planning. They stated that the content of honors classes had served to develop and maintain student interest in the subjects. The teachers themselves had developed further appreciation of the abilities of the gifted.

The demanding pace of the honors classes required the teachers to devote more than the usual amount of time to planning and preparation. They emphasized the need for clerical help and assistance with routine work since they needed time for constant study and preparation on their own part. The teachers stressed the need for more time assigned to planning. Several of them said that the program should start in the early grades.

Grades

The grades given by the teachers of the honors classes show that the students performed well. In mathematics the grade-point average for combined honors groups was 3.32 (between *B* and *A*); in physics, 3.28.

Consultant Evaluation

The consultant stated that the materials covered in the honors classes were more realistic for gifted students than those in regular classes and that students' attitudes had improved in many cases as a result. Some students had difficulty adjusting to homework demands, however, and in some instances there was need for closer communication to avoid repetition of known learnings.

A great deal of teacher time was involved in testing, record keeping and preparation. The problem of student rating was one that necessitated frequent meetings. Despite the heavy work load, the teachers worked well together and apparently enjoyed the classes.

Review of Other Data

As shown in Table 19, the honors class students made a significant gain mean STEP[13] achievement over those in the control group. The gain was significant beyond the 5 per cent point. The gain which they made probably did not indicate true gain, since the performance of the group members was so high initially that test ceiling problems existed in many instances. The mean for the honors classes was higher than that of any other group.

ACCELERATION TO JUNIOR COLLEGE AND UNIVERSITY

The acceleration to junior college and university plan gave high school seniors an opportunity to take courses on a college campus while they were still full-time students at the high school. Their schedules were arranged so that blocks of time were available during the early morning and late afternoon hours of the school day.

The plans for the program were developed through conferences held by the State Study staff with school district officials and with junior college and university personnel. The experimental group included a total of 42 students enrolled at the junior college and university. Both institutions included some other students in an expanded program as the plan progressed.

The students were chosen for participation on the basis of the IQ requirement of the State Study and were counseled individually to ensure complete understanding of the program. All students participated voluntarily. They were given wide latitude in the choice of subjects, and attempts were made to place them with competent and interested instructors. Efforts were made by college and university personnel to orient them properly to college requirements and facilities through preschool visits, small group meetings, and individual counseling. Special bus arrangements were made for the students in one area.

Teacher Evaluation

A special form (See Appendix R) was devised for evaluation by the college and university faculty members. The form was used to get faculty reactions to motivation and attitudes of the students, their participation in class and attendance, their promptness with assignments, and their relationships with college students. Comments also were solicited regarding the faculty members' estimates of the program's value (if any).

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[13] *Sequential Tests of Educational Progress, op. cit.*

Not all faculty members commented on the programs. Some simply checked the form and indicated the semester grade. Of those who did comment, 79 per cent made favorable statements. Several of these follow:

From the University of California, Los Angeles:

> The program, so far as I can judge from one class, appeared to be quite successful. The group of high school students in my class were in all respects more than capable—easily on a par with the best of "regular" freshmen. Judging from their level of performance, I think your program is sound and important.
>
> In my opinion this program deserves every encouragement. These students are perfectly capable of doing college work.
>
> By allowing them to begin it when they are ready, we not only spare them the boredom and intellectual vices of restricting them to a level that does not tax their energies, but also make possible the fullest realization of their potentialities when they afterwards embark on their college careers.
>
> It was a pleasure to have Miss W.......... in my class in French 25A. Her enthusiasm was so great that she had a very good influence on other students.
>
> An excellent means of widening the extreme rigidity of the American University system.

From Modesto Junior College:

> An excellent student—these students help to set standards for other students. It should help to raise the rating of Modesto Junior College with respect to other institutions of similar classification.
>
> An outstanding young man—not only brilliant but personable. He does everything well. Probably one of the two best trigonometry students I have had in 20 years.
>
> It seems to me that the program has been good for the students and good for the college. The students have gotten a taste of college work which should help ease the abrupt transition from high school to college. I would certainly urge that the program be continued. Students who are to participate in the program should continue to be very carefully selected.
>
> This boy is tops. He is of research caliber and will do well in it. College has been of great benefit to him. This accelerated program will get him into the thing he should be doing, research, at an earlier age. (The best student I had or have had for some time.)

The negative comments were based upon schedule conflicts, absence, transportation problems, immaturity or shyness of the students. These accounted for 10 per cent of the total comments. The following statements show the problems as perceived by the instructors:

> This student should have been enrolled in the laboratory course at the same time that he was taking the lecture course. I understand, though, it was not possible because of high school course conflicts.

> Failure to master the skills of Judo was his downfall. (Grade: *C*)
>
> The seven lectures which he missed did not help his grade.
>
> Dropped out of school Oct. 9th. Later I saw him at work and he said the transportation problem had been too difficult . . .

Figure 37 shows the combined ratings of the college and university faculty members on various traits. It demonstrates clearly the high rank which the high school students attained in the estimation of the faculty. Every item was ranked in the *excellent* category on the basis of averages of total rankings.

College Grades

Another important facet of the instructor ratings was the grades which they gave to the high school students. From the total listing of grades for both collegiate institutions, grade-point averages for the fall and spring semesters were calculated. The basis used was 4 points for an *A*, 3 for a *B*, 2 for a *C*, 1 for a *D*, and none for an *F*.

The students from the two Modesto high schools made a grade-point average of 2.85, or nearly *B*, for the fall semester and 2.90 for the spring semester. Of 18 *C* or *D* grades given during the fall, 7 came from one instructor. The remainder were scattered.

The grade-point average of the accelerants to the University was 3.32 for the fall semester. This increased to 3.57 during the spring semester.

The combined grade-point average for the total group of 42 students was 3.02, a *B* ranking, for the fall semester, and 3.13 for the spring semester. It is interesting to note that the grade-point average increased despite the fact that the students took 259 units during the spring, as opposed to 244 during the fall. Evidently the fall semester orientation gave them a basis for better performance during their second semester.

The total group of students took 503 units during the year, or more than 11 units per student. The peak of performance is represented in the record of one pupil, who took 21 units of college, with 4 *A's* in mathematics and chemistry, one *B* in mathematics, and two *B's* in physical education, while at the same time maintaining better than a *B* average in a full high school schedule! Other students took only one course during the semester; still others changed the load each semester.

High School Grades

High school grades were available for 40 of the 42 accelerated students. These were solicited because of the anticipated question regarding performance at the high school level. Of the 118 grades reported, 57 were *A's*, 47 were *B's*, and 14 were *C's*. No *D's* or *F's* were reported. With 91 per cent of the grades in the *A* or *B* categories, it is reasonable to presume that the total accelerant group maintained high scholastic performance at both levels. The grade-point average for all high school subjects was 3.48 (between *B* and *A*).

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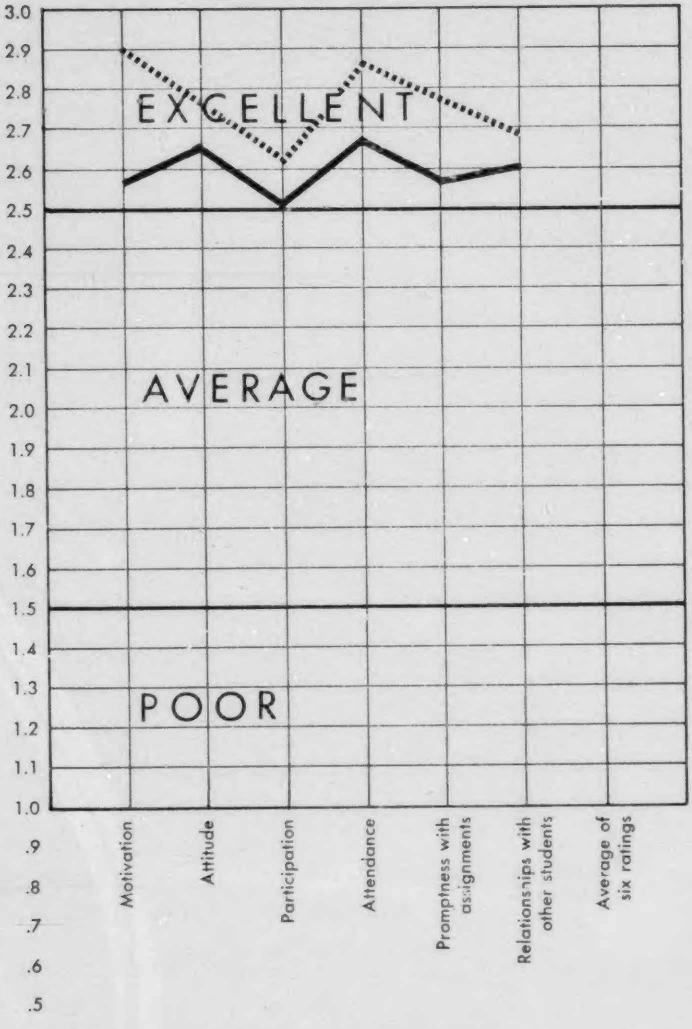

Individual scores are averages of instructors ratings.
Scores plotted represent the mean of the average scores.

▪▪▪▪▪▪▪▪▪▪▪ Modesto Junior College; N=29.

▬▬▬▬ University of California, Los Angeles; N=15.

FIGURE 37. College Instructor Ratings by Academic Subject Averages

Consultant Evaluation

The state curriculum consultants reported that comments of students and parents were highly favorable toward the plan. The students had developed an understanding of their abilities and thus had gained in self-confidence. They had developed a desire to learn, had a healthy respect for knowledge and information, were appreciative of the opportunity to take advanced work and to be considered mature individuals. They had learned to make good use of their time. As a result of the program, teachers, students, and parents reported an increased respect for persons with high intelligence within the entire high school group. Several of the accelerated students stated that as a result of the experience they had become interested in a college education.

The problems mentioned were related to the need for careful program planning. The screening of instructors and courses was deemed important. The instructor who was friendly toward the program and the accelerants did much to make the program successful. Total course loads, carefully planned so that the student's time schedule was realistic, were advocated.

Review of Other Data

As shown in Table 19, the accelerated students made significant gains in mean achievement on the STEP tests.[14] At this level, the real achievement of the students probably was not measured because of test ceiling problems. Of the 42 students, 28 were included in the group who took the Graduate Record Examination. The reader will recall that in Chapter 8, "Evaluation of Pupil Achievement," under the heading, "Graduate Record Examinations," results were presented which showed that the high school seniors surpassed the performance of college seniors.

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[14] *Sequential Tests of Educational Progress, op. cit.*

Chapter 18

COSTS OF PROGRAMS

A major consideration in planning programs for gifted children is the potential cost of such programs. Careful, detailed cost accounting has been carried on in very few schools throughout the country, probably because special costs for the gifted have been subsumed within the general budget. Yet if adequate programs are to be developed and maintained and if the gifted are to be given more than sporadic and cursory attention, facilities and personnel must be such that their proper education can be assured.

Within the State Study, therefore, participating districts were asked to keep records of all expenditures incurred in relation to the special programs. They were asked to differentiate these costs clearly from normal costs. The records were divided into two phases: (1) identification; and (2) curriculum and program. The division was made because the two phases involved different staff members and different activities in many ways. The first phase represented a preparatory stage.

IDENTIFICATION COSTS

The costs of the initial identification and study of pupils included calculations based upon time spent by many persons. The personnel kept a record of their activities and the number of hours expended during the spring of 1958. The records were complete enough to furnish accurate data on 660 pupils, and upon these data the identification cost estimates were based. The costs included three-fifths of the time of the state research consultants, actual days spent by the project co-ordinator in screening activities, the salary of a part-time state staff member, and the actual number of hours spent by school district personnel. A sample of a record kept by a junior high school counselor appears on the following page.

The costs for the time invested by school district personnel and by staff members of offices of county superintendents of schools were computed by using median salary figures obtained from the Bureau of Education Research, State Department of Education. These figures were broken down into hourly rates, which in turn were multiplied by the number of hours of work reported by the participating personnel. With respect to counselors in Los Angeles City School Districts, the district salary figure was used in each instance. The identification process included the collection of complete data on each pupil regarding interests, special needs, skills, family background, and health. These data are of importance to school personnel who work with the child.

The identification costs amounted to $39.63 per pupil in a rural county and $47.63 in an urban county. They are included in the total cost estimates for each school district.

A SAMPLE RECORD OF IDENTIFICATION COSTS

Please record any time spent directly on activities for the State Study of Programs for Gifted Children. Return at the end of the month to your area consultant. Be brief.

Month .... Name ....

Day of month	*Hours worked*	*Activities*
1	7	Interviewing and paper work
2	7	Interviewing and paper work
3		
4		
5	7	STEP[1] test–interviewing
6	7	STEP test
7	7	STEP test–interviewing
8	7	Make up STEP test–interviewing
9	7	Interviewing–paper work
10		
11		
12	3	Interviewing–paper work (regular school duties, 4 hours)
13	7	Interviewing
14	7	Interviewing
15	7	Interviewing
16	7	Interviewing
17		
18		
19	3	Psychological inventory–interviewing
20	2	Interviewing
21	2	Personal and social adjustment inventories
22	2	Finishing reports
23	0	All work completed

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[1] ***Sequential Tests of Educational Progress.*** **Princeton, New Jersey: Co-operative Test Division, Educational Testing Service.**

CURRICULUM AND PROGRAM COSTS

For the second phase of cost accounting, participating districts were asked to record all expenditures in developing and maintaining their special programs. These expenditures included the actual time spent by various personnel in State Study activities, all special materials and supplies, summer workshop fees, and special transportation. In addition, the cost of time spent by state curriculum consultants in various programs, the cost of supplementary clerical help, and the cost of group testing programs were calculated.

Total costs and the cost per pupil for each district were determined. The per-pupil cost included the program cost and the identification cost.

It was not posssible to determine costs separately for each program, since in some cases school districts were responsible for several types of programs. This meant that materials purchased for one program were used also in another and that consultants gave service within all programs in a district. The program costs were recorded separately for elementary and high school levels, however, and sufficient differentiation occurred in the cost summaries to furnish clear indication of variation from program to program.

ANALYSES OF PROGRAM COSTS

In examining the lists of actual costs of programs that are presented in this chapter, one should bear in mind the following factors:

1. The districts that participated did so within already established budgets; therefore, no figure can be said to be the true amount which would be spent if needed funds were available.
2. The amount spent, even by districts in the same program, varies greatly. This may represent in part differences in existing facilities and in part differences in abilities of the districts to contribute. For example, some districts paid summer workshop fees for teachers; others could not.
3. The amount of personnel time which could be assigned to the project was limited in all districts and was dependent upon existing resources and demands.

If it were possible to secure a cost estimate that is based upon the expenditures required for teacher needs instead of the exigencies imposed by established budgets, consideration would have to be given individually to the budgetary items included in the reports of the several districts involved. Certainly no figure that merely reflects the highest expenditures made by any district or any combination of total expenditures made by the districts would produce the estimate needed. Rather, the estimate should be based upon the costs of those items, in all the programs offered by the districts, which are deemed essential to the full success of the programs. This fact becomes most evident in the following analyses of the accounting reports submitted by the districts that participated in the study.

The Manhattan Beach City Elementary School District presented a more detailed cost summary than some of the other participating districts. This accounting, however, was based upon what the district could finance during the year. The total amount does not represent what the district would have spent if funds had been available.

The district in Manhattan Beach listed costs that amounted to $259.24 per pupil. This amount did not cover the costs of many items available to the teachers in the district but which were not purchased for use in the special programs. The total cost, therefore, should be evaluated along with expenditures made in other school districts for materials and supplies to be used in programs for gifted pupils. Thus, the minimum figure of $259.24 might well be extended by the addition of these supplies listed by other participating districts:

Micro-viewer
Professional books
Encyclopedias
Tape recorders
Phonographs
Reading laboratory
"Erectronic" set
Radio equipment
Slide rule
Scales

It should be kept clearly in mind that the legislative appropriation for the present study did not include funds for the conduct of completely adequate programs. The cost figure recommended by the Advisory Committee takes this fact into consideration. The committee's recommendation represents a conservative estimate of the amount necessary to provide needed special materials and resources.

No attempt was made to arrive at an average cost for either elementary or secondary schools. The factor of budget limitations would make an average cost figure less realistic than a single complete report. The average would be merely a compounding of error imposed by limitations.

In addition to considering costs listed by school districts, it is important to consider costs that would occur if teachers had all the supplies they actually needed. It should be stressed again that the school districts operated the experimental programs within the framework of their existing budgets and in many cases were not able to give the teachers the kind of equipment and materials which they should have had.

Primary teachers in the San Diego area were asked to list equipment, and the results of their recommendations are shown on the summary sheets in this chapter for Chula Vista City and La Mesa-Spring Valley elementary school districts.

Costs of Programs—Special Summaries

Second grade teachers from the West Elementary District of Los Angeles and fifth and sixth grade teachers from the participating school districts elsewhere in Los Angeles County listed the materials which they purchased themselves during the experimental year and the materials and equipment which they would have ordered had they been given sufficient funds. Materials purchased by teachers included such items as listening posts, science equipment, maps and atlasses, books, magazines and dictionaries.

Costs were calculated for all of the items listed by the teachers from figures supplied by the accounting division of the Los Angeles City School Districts. The total amount spent and desired represents costs to school districts rather than retail prices. The final figure represents a five-year use period, since many of the items conceivably would be used for more than one year.

The two summaries compiled from the lists submitted by these teachers follow.

SECOND GRADE

Amount spent by 12 second grade teachers	$580.51
Amount spent per teacher	48.38
Cost of materials and equipment desired	1,303.88
Cost per teacher	108.66
Amount *spent* and amount *desired* per teacher	157.04
Assuming 5-year period of use = $157.04 ÷ 5	
Added cost per teacher	$31.41

FIFTH AND SIXTH GRADES

Amount spent by 19 fifth and sixth grade teachers	$303.00
Amount spent per teacher	15.95
Cost of materials and equipment desired	3,628.51
Cost per teacher	190.97
Amount *spent* and amount *desired* per teacher	206.92
Assuming 5-year period of use = $206.92 ÷ 5	
Added cost per teacher	$41.38

Costs of Programs—District Summaries

In the material that follows, accounting data are given district by district and by office of county superintendent of schools. Under each district or office heading, the grade level or levels and the plan or plans for gifted pupils are indicated. Table 61 at the close of the chapter shows the per-pupil program cost for each participating district or office.

LA MESA-SPRING VALLEY ELEMENTARY SCHOOL DISTRICT

(Ungraded Primary; Cluster, Grade One)

Salaries		
Supervisory time (70 hours)	$391.30	
State consultant (20 per cent of time)	1,622.40	
Clerical (30 per cent of state allocation)	300.00	
Materials and Supplies		
Film strips, viewers	140.00	
Book and supplies	15.70	
Testing program, 50¢ per pupil	25.00	
TOTAL		$2,494.40

LA MESA-SPRING VALLEY ELEMENTARY SCHOOL DISTRICT
(Continued)

Program and Identification Costs per Pupil

Program cost per pupil	$49.89	
Identification cost per pupil	47.63	
TOTAL cost per pupil (50 pupils)		$97.52

Equipment needed

The following equipment was listed by the participating teachers *as needed* in their classrooms:

Needed equipment for 10 rooms	$5,470.00	
$547 per room—reference books, dictionaries, supplemental materials, library books, maps and globes		
Assuming a 5-year period of use, $5,470 ÷ 5	$1,094.00	
Actual total (from above)	2,494.40	
		$3,588.40
Program cost per pupil	$71.77	
Identification cost per pupil	47.63	
TOTAL cost per pupil (actual and needed)		$119.40

CHULA VISTA CITY ELEMENTARY SCHOOL DISTRICT
(Special Interest, Grades Five and Six; Enrichment, Grade One)

Salaries

Clerical (district—40 hours)	$75.20	
Clerical (30 per cent of state allocation)	300.00	
District supervisor (15 hours)	83.85	
District psychologist (96 hours)	363.84	
Curriculum director (80 hours)	447.20	
District supervisor (40 hours)	223.60	
Assistant superintendent (2 hours)	12.66	
Art supervisor (2 hours)	11.18	
State consultant (20 per cent of time)	1,622.40	
Teacher consultant (½ salary)	4,476.50	

Materials and Supplies

Books, science materials, globes, and the like	530.25	
Secretarial materials	36.20	
Micro-viewer	175.00	
Professional books	20.00	
Testing program (STEP[3]), $1.50 per pupil	36.00	
Special test scoring, 50¢ per pupil	14.50	
TOTAL		$8,428.38

Program and Identification Costs per Pupil

Program cost per pupil	$159.03	
Identification cost per pupil	47.63	
TOTAL cost per pupil (53 pupils)		$206.66

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[3] *Sequential Tests of Educational Progress, op. cit.*

Equipment Needed

The following equipment was listed by the participating teachers as *needed* in their classroom:

Needed equipment for 16 rooms	$8,752.00	
$547 per room–reference books, dictionaries, supplemental materials, library books, maps and globes		
Assuming a 5-year period of use, $8,752 ÷ 5	$1,750.40	
Actual total (from above)	8,428.38	
		$10,178.78
Program cost per pupil	$192.05	
Identification cost per pupil	47.63	
TOTAL cost per pupil (actual and needed)		$239.68

SAN DIEGO CITY UNIFIED SCHOOL DISTRICT

(Enrichment, Grade One)

Salaries		
Consultants (10 hours)	$55.90	
Clerical (16 hours)	30.28	
State consultant (20 per cent of time)	1,622.40	
Clerical (20 per cent of state allocation)	200.00	
Materials and Supplies		
Books	200.00	
Paper	5.70	
Professional books	24.50	
Magazines (estimate)	100.00	
Films and Slides	14.00	
Miscellaneous supplies	10.00	
Testing program, 50¢ per pupil	15.50	
TOTAL		$2,278.28
Program and Identification Costs per Pupil		
Program cost per pupil	$73.49	
Identification cost per pupil	47.63	
TOTAL cost per pupil (31 pupils)		$121.12

MONTEBELLO UNIFIED SCHOOL DISTRICT

(Cluster, Grades Five and Six)

Salaries		
State curriculum consultant (15 per cent of time)		$1,216.80
Materials and Supplies		
Books	890.00	
Equipment	100.00	
Testing program	37.50	
Miscellaneous		
Summer workshop fees	315.00	
TOTAL		$2,559.30

MONTEBELLO UNIFIED SCHOOL DISTRICT
(Continued)

Program and Identification Costs per Pupil		
Program cost per pupil	$102.37	
Identification cost per pupil	47.63	
TOTAL cost per pupil (25 pupils)		$150.00

MANHATTAN BEACH CITY ELEMENTARY SCHOOL DISTRICT
(Enrichment and Cluster, Grades Five and Six)

Salaries		
Clerical	$643.36	
Two district curriculum consultants (5 per cent of time)	719.00	
Psychologist (1 week's equivalent time)	216.00	
One added teacher	4,195.91	
Assistant superintendent in charge of curriculum (5 per cent of time)	650.00	
State curriculum consultant (20 per cent of time)	1,622.40	
Materials and Supplies		
Books	1,051.60	
Pamphlets	447.47	
Film Strips	61.36	
Listening Posts	1,000.00	
Bioscopes	390.12	
Testing program (STEP[3]), $1.50 per pupil	81.00	
Miscellaneous		
Summer workship fee (17 teachers, $20.00 each)	340.00	
Transportation of pupils (testing program)	8.58	
TOTAL		$11,426.80
Program and Identification Costs per Pupil		
Program cost per pupil	$211.61	
Identification cost per pupil	47.63	
TOTAL cost per pupil (54 pupils)		$259.24

HAWTHORNE ELEMENTARY SCHOOL DISTRICT
(Enrichment, Grades Five and Six)

Salaries	
State curriculum consultant (15 per cent of time)	$1,216.80
Additional psychological services	388.00
Substitute teaching time	40.00
Secretarial help	17.00
Curriculum director (5 per cent of salary)	490.00
Materials and supplies	
Books, magazines, and encyclopedias	808.00
Testing program, $1.50 per pupil	37.50

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[3] *Sequential Tests of Educational Progress, op. cit.*

Miscellaneous		
Summer workshop tuition (14 teachers and 6 administrators, $20.00 each)	400.00	
TOTAL		$3,396.50
Program and Identification Costs per Pupil		
Program cost per pupil	$135.86	
Identification cost per pupil	47.63	
TOTAL cost per pupil (25 pupils)		$183.49

OFFICE OF THE STANISLAUS COUNTY SUPERINTENDENT OF SCHOOLS

(Saturday Class, Grades Five and Six)

Salaries		
Consultants (through May, $293 per month)	$2,199.00	
Administrators (on duty Saturdays)	630.00	
Janitorial charges (special duty on Saturday, high school and county superintendent's center)	360.00	
Materials and Supplies		
Operating expenses (records, books, paper, pencils, tapes, 3 tape recorders, 2 phonographs, 1 slide projector, and the like)	1,484.50	
Testing program, $1.50 per pupil	52.50	
Miscellaneous		
Transportation to schools (20 parents in car pools, 30 miles average each Saturday, 12¢ per mile)	72.00	
TOTAL		$4,798.00
Program and Identification Costs per Pupil		
Program cost per pupil	$137.09	
Identification cost per pupil	39.63	
TOTAL cost per pupil (35 pupils)		$176.72

OFFICE OF THE STANISLAUS COUNTY SUPERINTENDENT OF SCHOOLS

(Enrichment, Grades Five and Six)

Salaries		
Special consultant (music)	$50.00	
State research consultant (2¾ days)	71.00	
Consultant time (50 per cent of total)	4,062.00	
Secretarial help	977.60	
Materials and Supplies		
Special equipment SRA[4] reading laboratory "Erectronic" set Special reference books and magazines	100.00	
Testing program, $1.50 per pupil	39.00	

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[4] Science Research Associates (Chicago).

OFFICE OF THE STANISLAUS COUNTY SUPERINTENDENT OF SCHOOLS (Continued)

Miscellaneous		
Mileage for consultant	24.00	
TOTAL		$5,323.60
Program and Identification Costs per Pupil		
Program cost per pupil	$204.75	
Identification cost per pupil	37.63	
TOTAL cost per pupil (26 pupils)		$242.38

LOS ANGELES CITY SCHOOL DISTRICTS—ELEMENTARY

Salaries		
Clerical	$75.00	
Teachers (extra time for preparation)	2,205.41	
Consultant's secretary (60 per cent of time)	4,818.00	
Consultant time	677.31	
State curriculum consultant (20 per cent of time)	1,622.40	
Materials and Supplies		
Audio-Visual (bioscope, listening center, tape recorders)	1,426.00	
Library section (single copies of books and textbooks)	1,474.52	
Curriculum (books, globes, maps, science equipment, scales, magazine subscriptions, art, and the like)	507.77	
SCAT[5] and STEP[6] answer sheets (1958 and 1959)	39.00	
Gates reading tests[7] (1958), supplemental	14.00	
Extra tests for diagnostic purposes	9.30	
Printing, stamps, phone calls	25.00	
Testing programs:		
Primary grades	100.00	
Fifth and sixth grades, $1.50 per pupil	127.50	
Total		$13,121.21
Program and Identification Costs per Pupil		
Program cost per pupil	$74.55	
Identification cost per pupil	47.63	
TOTAL cost per pupil (176 pupils)		$122.18

OFFICE OF THE STANISLAUS COUNTY SUPERINTENDENT OF SCHOOLS

(Community Sponsor, Grade Eight)

Salaries		
Consultant time (25 per cent of total)	$2,031.00	

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[5] *School and College Ability Tests.* Princeton, New Jersey: Co-operative Test Division, Educational Testing Service.

[6] *Sequential Tests of Educational Progress, op. cit.*

[7] Arthur I. Gates, *Gates Primary Reading Tests and Gates Advanced Primary Reading Tests.* New York: Bureau of Publications, Teachers College, Columbia, University.

Materials and Supplies		
Books	175.00	
Paper (special carbon, envelopes)	25.00	
Radio equipment ($33.84 state funds, $20.00 donated)	53.84	
Special equipment (slide rules, scales, compass)	10.00	
Testing program, $1.75 per pupil	47.25	
Special test scoring, 50¢ per pupil	13.50	
Miscellaneous		
Postage	5.00	
Mileage for consultant pickup (approximately 200 miles, 8¢ per mile)	16.00	
TOTAL		$2,376.59
Program and Identification Costs per Pupil		
Program cost per pupil	$88.02	
Identification cost per pupil	39.63	
TOTAL cost per pupil (27 pupils)		$127.65

LOS ANGELES CITY SCHOOL DISTRICTS–SECONDARY

(Special Classes, Grades Eight and Eleven)

Salaries		
Reserve teacher (equivalent of one reserve teacher per six)	$6,000.00	
State consultant (10 per cent of time)	811.20	
Materials and Supplies		
Textbooks:		
Eighth grade	1,506.35	
Eleventh grade	3,959.11	
Testing program, $1.75 per pupil	234.50	
Special test scoring, 50¢ per pupil	67.00	
TOTAL		$12,578.16
Program and Identification Costs per Pupil		
Program cost per pupil	$93.87	
Identification cost per pupil	47.63	
TOTAL cost per pupil (134 pupils)		$141.50

SAN DIEGO CITY UNIFIED SCHOOL DISTRICT

(Junior High Acceleration, Grade Nine; Honors, Grade Twelve)

Salaries		
Two substitute teachers (9 days testing)	$180.00	
District consultant (40 hours)	223.60	
District counselors (40 hours, estimate)	184.00	
Materials and Supplies		
Student fees, $30 per student	1,860.00	
Testing program, $1.75 per student	108.50	
Special test scoring, 50¢ per student	31.00	
TOTAL		$2,587.10

SAN DIEGO CITY UNIFIED SCHOOL DISTRICT

(Continued)

Program and Identification Costs per Student

Program cost per student	$41.73	
Identification cost per student	47.63	
TOTAL cost per student (62 students)		$89.36

MODESTO CITY HIGH SCHOOL DISTRICT

(Independent Study, Grade Eleven)

Salaries and Materials

Administration	$1,940.30	
Instruction:		
Certificated salaries	2,400.00	
Other expenses	200.00	
Auxiliary services:		
Guidance and supervision	1,400.00	
Administration of classifying tests	660.00	
Miscellaneous		
Operation of school plant		
Maintenance of school plant		
Fixed charges		
Transportation	530.00	
TOTAL		$7,130.30

Program and Identification Costs per Student

Program cost per student	$230.01	
Identification cost per student	39.63	
TOTAL cost per student (31 students)		$269.64

MODESTO CITY HIGH SCHOOL DISTRICT

(Acceleration to Modesto Junior College,[1] Grade Twelve)

Junior College Acceleration Program

Cost of program		$4,625.62

Program and Identification Costs per Student

Program cost per student	$171.32	
Identification cost per student	39.63	
TOTAL cost per student (27 students)		$210.95

Formula: $\frac{267.5 \times 18}{525} \times 504.43$

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[1] The figures for this summary were derived according to Education Code Section 11451 and by using the Modesto Junior College current expense figure of $504.43 per unit of average daily attendance.

LOS ANGELES CITY SCHOOL DISTRICTS–SECONDARY

(Senior Acceleration to University of California, Los Angeles)

Salaries		
Consultant (equivalent to one full week)	$177.50	
Miscellaneous		
Student fees ($66 per student without student body ticket)	1,254.00	
Testing program, $1.75 per student	33.25	
Special test scoring, 50¢ per student	9.50	
TOTAL		$1,474.25
Program and Identification Costs per Student		
Program cost per student	$77.59	
Identification cost per student	47.63	
TOTAL cost per student (19 students)		$125.22

(Table 61 appears on the following page.)

TABLE 61

Total Per-pupil Costs of Programs for Gifted Children, by School District and Office of County Superintendent of Schools [1]

School district or office of county superintendent of schools	Program and grade level	Number of pupils	Total per pupil cost for program
La Mesa-Spring Valley Elementary School District	Ungraded primary; cluster, grade one	50	$97.52 (actual) 119.40 (actual) and needed)
Chula Vista City Elementary School District	Special interest, grades five and six; enrichment, grade one	53	206.66 (actual) 239.68 (actual) and needed)
San Diego City Unified School District	Enrichment, grade one	31	121.12
Montebello Unified School District	Cluster, grades five and six	25	150.00
Manhattan Beach City Elementary School District	Enrichment and cluster, grades five and six	54	259.24
Hawthorne Elementary School District	Enrichment, grades five and six	25	183.49
Office of Stanislaus County Superintendent of Schools	Saturday class, grades five and six	35	176.72
Office of Stanislaus County Superintendent of Schools	Enrichment, grades five and six	26	242.38
Los Angeles City School Districts	Elementary	176	122.18
Office of Stanislaus County Superintendent of Schools	Community sponsor, grade eight	27	127.65
Los Angeles City School Districts —secondary	Special classes, grades eight and eleven	134	141.50
San Diego City Unified School District	Acceleration, grade nine; honors, grade twelve	62	89.36
Modesto City High School District	Independent study, grade eleven	31	269.84
Modesto City High School District	Acceleration to MJC[2], grade twelve	27	210.95
Los Angeles City School Districts	Senior acceleration to UCLA[3]	19	125.22
Added costs requested per teacher			
Los Angeles City Elementary School Districts (West Elementary)	Grade two		31.41
Elementary schools in Los Angeles County	Grades five and six		41.38

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[1] The cost per pupil does not represent funds which should have been expended if districts had sufficient funds available for these programs. The cost-per-pupil figure is spuriously low because the districts allocated funds for the study from previously established budgets. Thus expenditures for materials and equipment were limited far more than they should have been.

[2] Modesto Junior College.

[3] University of California, Los Angeles.

Chapter 19

SUPPLEMENTARY STUDIES

Several school districts in California co-operated with the State Study staff by submitting research findings from studies which they had conducted independently. These districts were Redwood City Elementary School District, Long Beach Unified School District, and Oakland City Unified School District.

A fourth district, San Luis Obispo City Elementary School District, carried on a separate study in which all of the State Study procedures and materials were utilized. The district teacher in this project was a participant at the University of California, Los Angeles, summer workshop for teachers of experimental groups. The district officials provided their own consultant help, and the contact with the State Staff consultants during the two-week summer session was the only contact that was made at the state level.

The studies completed by these four districts constitute supplementary studies and are summarized briefly in this chapter so that additional information regarding the effects of programs for gifted pupils is made available.

SAN LUIS OBISPO CITY ELEMENTARY SCHOOL DISTRICT PROGRAM[1]

The program in the San Luis Obispo City Elementary School District involved interest groups for fifth and sixth grade pupils. The groups met daily for two-hour sessions. In this program the total number of 31 pupils—21 boys and 10 girls—was divided into a morning and an afternoon group. The teacher assigned to the program worked with these pupils on a wide variety of research activities.

The 31 pupils, identified through State Study criteria, had a mean IQ of 147.4 and a mean chronological age of 125.7 months. They were brought from several schools to a central place to take part in the program activities.

Academic Achievement

Matched pairs of San Luis Obispo pupils and control pupils from the State Study population were evaluated in mean achievement on the STEP[2] battery. Table 62 shows that the groups were closely comparable in IQ, chronological age, and distribution by sex.

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[1] Data made available by Mrs. Ora Butzbach, special teacher, and J. N. Regier, then superintendent, San Luis Obispo City Elementary School District.

[2] *Sequential Tests of Educational Progress.* Princeton, New Jersey: Co-operative Test Division, Educational Testing Service.

TABLE 62

Mean and Standard Deviation for IQ and Chronological Age of San Luis Obispo Pupils and Those in the Control Group

Group	Number of boys	Number of girls	IQ Mean	IQ Standard deviation	Chronological age Mean	Chronological age Standard deviation
Experiment	17	7	146.79	11.65	125.29	5.74
Control	17	7	148.00	12.82	124.00	5.31

The San Luis Obispo pupils made significantly greater gain than the control pupils in mean achievement ($F = 7.051$ $p < .05$). The conclusion is that the program was of benefit academically to the interest group participants.

Teacher Evaluation of Plan

The teacher rated herself as *increasing* in strength and skill as a teacher, in knowledge of subject areas, and in enthusiasm for her particular plan in the State Study. Her appreciation of gifted pupils showed a *marked increase*.

She stated that the two hours spent in workshop activities were of great value to the pupils. The projects did not interfere with regular classroom activities. Most of the pupils absorbed added activities with ease.

In the teacher's opinion, it would have been advantageous to hold the classes in each building and to extend them to more children and to all grades. Such an arrangement would facilitate liaison with regular teachers and promote understanding and co-operation.

The problem of materials and supplies was a difficult one for the teacher. She was not able to obtain certain needed materials promptly, and consequently expended her own funds in a number of instances.

Evaluation of Pupil Performance by Teacher, Parents, and Selves

The pupils were evaluated by their teacher, by their parents, and by themselves with respect to 16 categories grouped in six general areas. The ratings employed for each of the 16 categories or items ranged as follows: *A*—marked decrease; *B*—some decrease; *C*—no change; *D*—some increase; *E*—marked increase. (See data forms, Appendixes M, N, and O.)

Essentially the evaluations had to do with the pupils' subject matter competence, work skills and habits, attitudes, relationships with others, and self understanding. The results of the evaluations are presented in

Table 63. It can be noted that the majority of ratings in all categories reflect a favorable trend. The areas of subject matter performance and intellectual activity are rated higher than those dealing with relationships with others although, in the main, the latter reflects no problems.

Evaluation of Plan by Parents and Pupils

In addition to evaluating pupil performance, parents and pupils were asked to react to these three questions: (1) Has participation in the study helped him? (2) Has participation created problems for him? (3) Would you like the program continued? Table 64 summarizes their reactions to the questions. (See page 235.)

The table shows that parents and pupils regarded the program as helpful and that they would like the program continued. The problems listed by parents and pupils derived from misunderstanding and resentment on the part of others, mainly regular teachers and classmates, and from pupil frustration regarding homework. Some of the latter problems developed in the regular classroom.

No attempt was made to select direct statements regarding values and problems in programs. Earlier chapters in the State Study were devoted to a complete evaluation of programs by pupils and parents, and the illustrative comments in those chapters typify the remarks of the San Luis Obispo participants as well.

Sociometric Data

Sociometric data were obtained during the spring preceding the experimental year and at the end of the experimental year. The data showed a slight loss in the regular classroom, but the loss was not significant according to the Dixon-Mood[3] test. The program had little effect on the social relationships of the participants.

REDWOOD CITY ELEMENTARY SCHOOL DISTRICT PROGRAM[4]

The Redwood City Elementary School District carried on a workshop program at fifth and sixth grade levels and a cluster group program at the seventh and eighth grade levels. These two programs were part of a total district program that included also regular classroom enrichment and planned acceleration. The study was conducted during the two-year period, 1957-59.

The pupil participants were selected on the basis of teacher judgment and an individual intelligence test. The total group involved in the evaluation study consisted of 80 pupils, who were divided into four workshop groups and nine classes in which clusters of seven to ten gifted pupils per cluster were assigned.

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[3] Allen Edwards, *Statistical Methods for the Behavioral Sciences.* New York: Rinehart & Co., 1954, p. 288.

[4] Data made available by Clarence Petersen and Thomas Stephens, co-chairmen of the district study project and of the gifted child committee, Redwood City Elementary School District.

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TABLE 63

Evaluation by Teacher, Parents, and Pupils of Pupil Performance in San Luis Obispo Plan

Area and category	Number of pupils per rating														
	Ratings by teacher					Ratings by parents					Ratings by pupils				
	A	*B*	*C*	*D*	*E*	*A*	*B*	*C*	*D*	*E*	*A*	*B*	*C*	*D*	*E*
I. Subject matter competence:															
Ability to solve problems	--	--	1	20	8	--	--	5	17	5	--	--	1	25	3
Knowledge of subject matter areas	--	--	1	19	11	--	--	--	14	13	--	--	--	13	9
Ability to see relationships	--	--	1	19	11	--	--	11	10	6	--	--	8	16	9
Knowledge of basic skills	--	--	1	20	10	--	2	14	8	4	--	--	5	14	12
II. *Modus operandi:*															
Research skills	--	--	2	16	13	--	--	--	12	15	--	--	2	11	18
Critical thinking ability	--	--	1	15	15	--	--	8	15	4	--	--	9	16	6
Experiment with ideas and things	--	--	6	16	7	--	--	6	9	12	--	--	--	10	19
Ability to work independently	--	--	1	18	12	--	--	11	8	8	--	--	10	11	10
III. Intellectual stimulus:															
Interest in school	--	--	2	20	9	--	1	7	11	8	--	1	8	12	10
Motivation toward learning	--	--	4	19	8	--	1	5	11	10	--	--	5	12	14
Intellectual curiosity	--	--	1	20	9	--	--	3	10	14	--	--	2	14	15
IV. Relationship with teachers:															
Rapport with teacher	--	1	28	2	--	--	1	21	3	2	--	2	14	12	3
Ability to accept responsibility	--	1	3	21	6	1	1	11	8	6	--	--	8	16	7
V. Interpersonal relationships:															
Status in peer group	--	2	7	13	9	--	--	18	6	3	2	2	13	14	--
Acceptance of leadership roles	--	--	5	15	10	--	--	12	13	2	--	1	8	15	5
VI. Self-understanding:															
Self-understanding	--	1	7	17	6	--	1	14	11	1	--	--	8	16	7

Ratings: *A*—**marked decrease;** *B*—**some decrease;** *C*—**no change;** *D*—**some increase;** *E*—**marked increase.**

Evaluation was based upon achievement test results and upon the judgment of the people involved, especially the regular teachers of the workshop pupils and their principals. The summary of judgments was derived from 228 questionnaires, which were filled out by the adults most directly concerned with the experiment.

TABLE 64

Evaluation of San Luis Obispo Plan by Parents and Pupils

Question	Responses					
	Parents			Pupils		
	Yes	No	Undecided	Yes	No	Undecided
Has participation helped?	26	1	--	29	1	--
Has participation created problems?	13	13	1	14	16	--
Would you like the program continued?	24	3	--	26	4	--

Workshop Program

The pupils attending the workshops left their regular classrooms for one day a week to take part in the Extended Study Program. Despite the absence, most of them were able to keep up with their regular work easily and to attain higher achievement test ratings than other pupils of comparable ability.

The majority of pupils, teachers, parents, and principals regarded the workshops as valuable. Only 3 per cent of the teachers and none of the parents saw no value in the experience. Nearly all the teachers, principals, and members of district committees on the gifted children wanted the workshops either continued or expanded to a full-time experience for the pupils. Only one person out of 73 responding to the questionnaire advocated that the program be either expanded or discontinued. Most of the ten changes suggested by the teachers and committee members concerned the admission of all eligible children. This had not been possible because of financial limitations. More than 80 per cent of the parents responded to the question regarding the future of the workshop program by stating without exception that the program should be continued, if not expanded.

The workshops were established to meet the following objectives:

1. To develop research skills to a greater extent
2. To develop more effective work habits
3. To develop problem-solving ability and attitude

4. To develop further the ability to communicate effectively in terms of oral and written reports
5. To provide opportunity for gaining advanced knowledge, wider experience, and extended interest in selected academic fields
6. To foster more effective citizenship through discussions of local and international problems and practice in parliamentary procedure
7. To provide additional opportunity for the development of creative expression, particularly in art and writing
8. To increase interest in, and enthusiasm for, education in general and thereby help the student to move closer to his potential
9. To enrich the curriculum for regular students through the contributions of those participating in the workshop

According to an analysis of responses, the first eight objectives were attained to a significant degree. Objective No. 9 was achieved in 58 per cent of the cases.

Cluster Group Program

The teachers of seventh and eighth grade pupils who were assigned to cluster groups regarded this program as valuable. Only one person stated that it should be discontinued, and only one said that there had been any deleterious effect upon peer relationships. All the teachers found that the nine objectives (see the foregoing list) had been met to some degree within their cluster program.

Of 20 teachers who were not involved in the program, 17 considered it to be of some or considerable value. Opinion regarding its continuance was somewhat evenly divided, with nine favoring continuation and seven advocating discontinuance. The principals of schools having cluster groups were favorably disposed toward the program and perceived no adverse effects on personal-social relationships.

Evidence of the success of both the cluster grouping and workshop programs has led to their continuation in the total district program for the third year.

LONG BEACH UNIFIED SCHOOL DISTRICT PROGRAM [5]

During the 1957-58 school year, an extensive evaluation of the Long Beach Unified School District program for very superior pupils was made by principals, counselors, teachers, and the participating pupils. The evaluation was an extension of several studies which had been made of the program annually since its inception.

The principals and counselors reacted to the values and contributions of the program by stating whether the purposes had been achieved and giving reasons for any failures encountered in the program.

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[5] Data made available by Theron Freese, Assistant Superintendent, Instruction, and Anton Thompson, Director of Research, Long Beach Unified School District.

The 165 teachers who evaluated the program were a randomly selected sample of the total staff. They were chosen according to specific directions given to the principals. The principals instructed the participating teachers to mail their evaluations without signatures directly to the district research office.

A random group of 134 pupils was selected from a total group of 1,505 identified as very superior pupils. These selected pupils were interviewed individually by counselors regarding their attitudes concerning the curriculum, instructional methods, and school needs.

Reactions of Principals

According to the principals, the most important purpose of the local program was "to provide special counseling, encouragement, challenge, and educational stimulation to the most intellectually capable pupils—to make sure that the very superior pupils are neither overloaded with 'busy work' nor left to develop their own skills in their own way and in terms of personal initiative alone." Of 67 principals who responded, 79 per cent stated that the schools had satisfactorily achieved this objective. The means for achievement had been those of enrichment, special counseling, and in-service work with teachers concerning the special needs of their pupils.

The principals who stated that their schools had not achieved the major purpose gave the following reasons: lack of specific materials and guides for teacher use; lack of provision for superior pupils in classrooms; and heavy teacher loads that prevented individual attention to superior pupils.

The principals noted two chief effects of the program upon the experiences of superior pupils. One effect came through the identification process, which meant that the teachers were made aware of their obligation to make special educational provisions for the pupils. The other was the opportunity that pupils had to enter special classes and to take part in other enrichment activities.

The major suggestions for the improvement and future development of the program dealt with teacher needs. The principals proposed that the guides for teachers be revised and expanded to provide specific ideas and enrichment materials. The suggestion next most frequently given was that teachers be given opportunity for meetings, workshops, and demonstrations to further their knowledge of superior pupils and to determine ways of helping them.

Reactions of Teachers

The great majority of teachers favored continuation of the program for superior pupils, with some revisions. Only 1 per cent favored discontinuing the program. Of the total group, three-fourths indicated that the program had been effective, although only two-thirds of the elementary teachers held this view. At the elementary level, the teachers considered enrichment methods and materials and the identification program to have been of value. In the secondary grades, enrichment methods and materials, higher standards, and identification were found helpful.

The most frequent suggestion made by teachers was that superior pupils be grouped for instructional purposes. Other important suggestions pertained to the addition of foreign languages, accelerated subject matter, improved guides for teachers, and more teaching aids and equipment.

Reactions of Pupils

When the 134 pupils were interviewed by the counselors, they were asked about the difficulty of the work involved in the program. The work was judged "about right" by 75 per cent, "too easy", by 20 per cent, and "too hard" by only 1 per cent. At the senior high school level, 35 per cent of the students thought their work was "too easy." A number of suggestions were made by the pupils regarding their programs. At all levels they stressed the need for emphasis on academic subjects, higher requirements, and ability grouping.

OAKLAND CITY UNIFIED SCHOOL DISTRICT PROGRAM [6]

The program for gifted pupils was established on an official basis in Oakland during the 1957-58 school year by the governing board of the Oakland City Unified School District. For the 1958-59 school year, the program was expanded to include more schools and more students. A special appropriation was made so that an individual testing program could be carried on at selected grade levels.

The programs at the elementary school level were organized on a part-time basis, with groups of pupils meeting on certain days or at certain hours. Two teachers and one librarian were assigned to meet with groups at certain elementary schools. The groups pursued special interests, did advanced reading and worked on projects, and had special experiences in such areas as creative writing and science. These activities occurred within the context of honors clubs, special class groups, and library reading groups. Cluster groups similar to those within the State Study were also formed in several schools. A total of 744 pupils worked with 14 teachers in the official district program. A number of other pupils were given additional opportunities in similar activities through programs organized on an unofficial basis within their schools.

Official programs with supplementary teacher time allocated to them were developed at three of the district junior high schools. These programs consisted of special classes, an accelerated program, and seminar groups. At the senior high school level, special classes and seminars were established in various subjects. A total of 930 students were included in official programs at the junior and senior high school levels.

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[6] Data made available by Merle H. Elliott, Director of Research, Oakland City Unified School District.

Opportunities were provided for 41 students to take courses at Oakland City College while they were full-time high school seniors. The courses were confined to eight subjects. Most of the students took one college course, although 14 elected two courses. The students passed the courses without much difficulty, with 70.9 per cent receiving *A*'s or *B*'s, 18.2 per cent *C*'s, 7.3 per cent *D*'s, 3.6 per cent incomplete, and no student receiving an *F*.

Additional activities at the junior college involved the identification of able students and creation of special programs for them through seminars, honors programs, and course credit by examination.

Reactions of the High School Seniors

A follow-up study was made ~~of the~~ June, 1958 high school graduates who had been in classes for the gifted. All but two of the 37 respondents were continuing their education, and 22 had received scholarships. Of the total group, 30 said that they had profited from the special classes; seven that they had not. The benefits gained included a background for and introduction to college level work, greater knowledge, help with study and discussion techniques and added incentive to learn.

The following suggestions were made for improving the program:

> Select only interested students and a good teacher; expand the offerings to include more English, history, philosophy, and other subjects; give more advanced work and reading in science, foreign languages, and mathematics; assign reading of complete works instead of anthologies in English Literature and require more papers; put more emphasis on quality rather than quantity; emphasize advanced study techniques and provide advanced college work while in high school; use more advanced and modern texts and materials, especially in mathematics and science; emphasize more creative work, experiences in handling abstract ideas and following interests at advanced levels; provide a meaningful counseling service; require more background reading for the seminar discussions so these are more than mere expressions of opinion and hearsay evidence.

General Results

A number of rewards were realized by the students and by the schools in the program for gifted boys and girls. From the reactions of the participants, the district research department compiled the following list of benefits:

1. Increased interest in and awareness of the problems of the gifted and able student and the type of program best fitted to this student
2. Greater parent and community interest in the program

3. Improved instruction in the entire school program achieved through better insight into the learning of children
4. Identification of many more gifted and able students with a resulting improvement of the learning experience offered them
5. Exploration into the feasibility of offering to high school students advanced college level courses at Oakland City College
6. A meaningful experience for Oakland teachers and counselors at the summer workshop, planned especially for those teachers and counselors who would be participating in the program in 1959-60

Problems for Future Study

The following problem areas were identified by the district research department as needing further study:

1. The identification and selection of students
2. Grading or marking practices
3. Adequate and reasonable structure of programs and requirements
4. Co-ordination of curriculum, records, in-service training, and other areas
5. Counseling time
6. Articulation and co-ordination of courses
7. Adequate offerings for the gifted in all parts of the city

LOS ANGELES CITY ELEMENTARY SCHOOL DISTRICT PROGRAM [7]

In addition to participating in several of the basic State Study experimental programs, the Los Angeles City Elementary School District established several supplementary groups. State Study procedures and materials were used with these groups, and at the elementary level the method of identification was the same as that for the State Study. Efforts were made to follow the same in-service training pattern for teachers as within the State Study, and a special staff member was assigned to co-ordinate the program and to serve as curriculum consultant.

Cluster groups were formed at the second grade level and at the fifth and sixth grade levels. A total of 76 pupils made up these groupings.

Second grade. The second grade cluster groups consisted of 20 girls and 14 boys. The mean chronological age of the 34 pupils was 80.6 months, and the mean IQ was 139.1. Of the total group, 19 were in the middle socioeconomic group, eight in the upper, and seven in the lower.

The performance of the pupils was evaluated through the use of the Gates reading test [8] and the staff-devised arithmetic processes test. Since the control group that was available was too small for comparison purposes, only gains are reported. Table 65 shows that the second grade pupils gained the equivalent of a year in arithmetic and were at approximately fourth-grade level in arithmetic processes. The gain in word recognition was 1.34 grade equivalents; in paragraph meaning, 1.91 grade equivalents, or nearly two years. The performance level in both areas of reading at the end of the experimental year was that of fourth grade.

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[7] Data made available by Mrs. Thelma Epley, Consultant, Division of Elementary Education, Los Angeles City Elementary School District.

[8] Arthur I. Gates, *Gates Primary Reading Tests* and *Gates Advanced Primary Reading Tests*. New York: Bureau of Publications, Teachers College, Columbia University.

TABLE 65

Means and Standard Deviations for Gates Reading and Arithmetic Processes Tests Administered to Second Grade Cluster Groups, and Gains Made Between Testings

Test coverage	Scores of supplemental second grade cluster groups				
	1958		1959		
	Mean	Standard deviation	Mean	Standard deviation	Gain
Arithmetic	12.47	2.62	16.42	3.87	3.95
Word recognition	2.66	0.65	4.00	0.98	1.34
Paragraph meaning	2.49	0.68	4.40	1.26	1.91

Analysis of friendship data showed that the pupils suffered no ill effects from the program. The status remained the same for the group.

Fifth and sixth grades. The fifth and sixth grade cluster groups were composed of 30 girls and 12 boys. The mean chronological age was 123 months, and the mean IQ was 139.3. Of the 42 pupils, 30 were classified within the middle socioeconomic group, 12 in the upper, and none in the lower.

The academic achievement of the supplementary cluster group was compared to that of matched controls from the State Study. The pupils were equated on the basis of age, IQ, sex, and socioeconomic status. Statistical allowances were made for differences in initial achievement. Analysis of results from the *Sequential Tests of Educational Progress*[9] revealed that the supplementary group members made a highly significant gain in mean achievement over those in the control group during the 1958-59 school year ($F = 9.87$ $p < .01$).

The special program had no effect upon the sociometric status of the participants. Their status remained unchanged after a year in the program.

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[9] *Sequential Tests of Educational Progress.* Princeton, New Jersey: Co-operative Test Division, Educational Testing Service.

Evaluations of the pupils were made by their teachers through the use of the 16-point scale described early in Chapter 10. The reactions showed that the pupils had made striking gains during the program year. The per cent of gain (increase or marked increase) per item ranged from 57 per cent to 95 per cent, while the loss on any item ranged from 0 to 2 per cent. Only a single loss was recorded by the teachers on three items of the entire scale.

LOS ANGELES CITY HIGH SCHOOL DISTRICT PROGRAM [10]

Two supplementary group programs were conducted by the Los Angeles City High School District, with 32 eighth grade pupils in one group and 31 eleventh grade students in the other. These groups were not comparable to any other of the groups that participated in the study, since only group test scores were used as a basis for identification and, as a result, matched groups for evaluation purposes could not be established. Data are presented, therefore, on a test-retest basis.

Eighth grade. The eighth grade pupils in the group-tested class took English, social studies, and mathematics in a special-class arrangement, as did the pupils in the eighth grade special classes within the experimental program. The arrangements for this group were essentially the same as those described for "Special Classes–Eighth Grade" in Chapter 17.

The group was composed of 14 girls and 18 boys, with a mean chronological age of 148.4 months. Of these pupils, 21 were within the middle socioeconomic group, 11 in the upper, and none in the lower.

The use of the STEP instruments [11] in the spring of 1958 resulted in a mean of 286.1, and a standard deviation of 7.46. The second testing in the spring of 1959 resulted in a mean score of 294.8 and a standard deviation of 7.78. The mean gain was 8.7.

Eleventh grade. The special group-tested class at the eleventh grade level took the same courses and followed the same procedures as the participants in the program described for "Special Classes–Eleventh Grade" in Chapter 17. In this group were 21 boys and 10 girls, with a mean chronological age of 183.8 months. None of these were in the lower socioeconomic group; 21 were classified in the middle group; and 10 were in the upper group.

On the first STEP [12] testing, given in the spring of 1958, the group had a mean score of 308.5 and a standard deviation of 7.22. On the final test, the mean score was 314.3, with a standard deviation of 7.69. The mean gain during the year was 5.8.

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[10] Data made available by Mrs. Helma Coffin, Special Education Supervisor, Los Angeles City High School District.

[11] *Sequential Tests of Educational Progress*, *op. cit.*

[12] *Ibid.*

Appendix A

KINDERGARTEN CHECK LIST[1]

1. County	3. School
2. District	4. Teacher

When compared with other children in the kindergarten, which of your pupils possess, to a marked degree, some of the following characteristics? Be particularly observant of the youngest children in the class. Do not exclude any child because of a speech defect.

1. Has unusually good vocabulary
2. Has ideas which are often very original in one or more areas (i.e. block play, free activities, art, rhythms, sharing)
3. Is alert, keenly observant, responds quickly
4. Has an unusually good memory
5. Has a long attention span
6. Recognizes, on his own, some words in books on the browsing table
7. Uses longer sentences
8. Reasons things out, thinks clearly, recognizes relationships, comprehends meanings
9. Is curious about many activities and places outside immediate environment and/or experience
10. Is a leader in several kinds of activities. Is able to influence others to work toward desirable goals
11. Has outstanding talent in a special area(s) such as art, music, rhythms, dramatics (Indicate area(s) of talent)

If you have any pupils who exhibit at least three of the above characteristics, please list their names below. Following each name, list the number of *all* characteristics that fit the pupil.

Pupil's name	Characteristics (Indicate by number)
1.	
2.	
3.	
4.	
5.	
6.	
7.	

Comments:

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[1] Form developed by Corabelle Clark and Eleanor Dyer, Compton; Lyman Peterson, Paramount; Marguret Lund, Manhattan Beach; Beatrice Lantz, Division of Research and Guidance, Office of Los Angeles County Superintendent of Schools.

Appendix B

FORMAL ARITHMETIC PROCESSES TEST

To First Grade Teachers:

We are interested in learning what your pupils identified in the State Study know about formal arithmetic processes. Will you please administer this test to your pupils individually between October 15 and 31, check the results, and return the test to your area Project curriculum consultant?

Thank you very much.

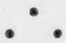
DIRECTIONS

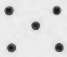
Read the directions to the child. If you need to, read both directions, if two are given, but *do not use any other directions.* Try every item at each level. Record responses on the test. Score each correct item + and each incorrect item —. When writing by the child is required, have him write on the test paper.

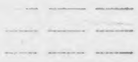
Two out of three successes must be made on each letter group I_A, I_B, etc.) for success on the group. Each group success equals one point. Two out of four group successes *at each level* must be made to go on to the next level. Try every item at each level until more than two groups are failed at a level. There is no time limit. The child should be given enough time to try each item.

Level I

I_A How many are here?

1.


2.


3.


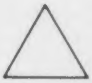
I_B What is this? or
How do we read ______?

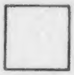
1. 2
2. 8
3. 7

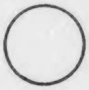
I_C Make a (4) or
Write the number

1. four
2. six
3. zero

I_D What is this? or
What do you call this?

1.


2.


3.


Level II

II_A How much are ______ and ______? or
Add ______ and ______.

1. $\begin{array}{r} 3 \\ +2 \\ \hline \end{array}$
2. $\begin{array}{r} 4 \\ +5 \\ \hline \end{array}$
3. $\begin{array}{r} 0 \\ +6 \\ \hline \end{array}$

II_B ______ take away ______ is? or
______ from ______ is?

1. $\begin{array}{r} 7 \\ -6 \\ \hline \end{array}$
2. $\begin{array}{r} 3 \\ -1 \\ \hline \end{array}$
3. $\begin{array}{r} 9 \\ -2 \\ \hline \end{array}$

II_C How much are ____ and ____ and ____ or
Add ____ and ____ and ____.

1. 2
2
$\underline{+1}$

2. 3
3
$\underline{+3}$

3. 4
1
$\underline{+2}$

II_D What do these mean or stand for or What do these tell us to do?

1. +
2. ×
3. —

Level III

III_A How much are ____ and ____
or Add ____ and ____.

1. 6
$\underline{+5}$

2. 4
$\underline{+8}$

3. 7
$\underline{+6}$

III_B How much is ____ take away ____
or ____ from ____ is?

1. 10
$\underline{-3}$

2. 12
$\underline{-5}$

3. 18
$\underline{-6}$

III_C How many are ____ × ____?
or say how many are (3 2's)?

1. 2
$\underline{\times 3}$

2. 4
$\underline{\times 2}$

3. 3
$\underline{\times 3}$

III_D Preface each example with (6) pencils divided into (2) groups are ____?

1. $2\overline{)6}$
2. $3\overline{)6}$
3. $4\overline{)8}$

Level IV

IV_A How many are ____ and ____ and ____?
or Add ____ and ____ and ____.

1.	2.	3.
6	17	12
5	8	28
$\underline{+3}$	$\underline{+9}$	$\underline{+11}$

IV_B How many are ____ take away ____?
or ____ from ____ is?

1. 35
$\underline{-11}$

2. 29
$\underline{-14}$

3. 33
$\underline{-24}$

IV_C How many are ____ × ____?
or say how many are (3 5's)?

1.	2.	3.
5	7	4
$\underline{\times 3}$	$\underline{\times 4}$	$\underline{\times 8}$

IV_D Use idea of pencils divided into groups if necessary

1. $3\overline{)18}$
2. $2\overline{)12}$
3. $4\overline{)36}$

Level V

V_A How much are ____ and ____ and ____?
or Add ____ and ____ and ____.

1. $\begin{array}{r}27\\34\\+128\\\hline\end{array}$

2. $\begin{array}{r}214\\308\\+197\\\hline\end{array}$

3. $\begin{array}{r}719\\347\\+628\\\hline\end{array}$

V_B ____ take away ____ is?
or ____ from ____ is?

1. $\begin{array}{r}246\\-123\\\hline\end{array}$

2. $\begin{array}{r}237\\-148\\\hline\end{array}$

3. $\begin{array}{r}702\\-344\\\hline\end{array}$

V_C How many are (4 22's)?
or How many is (4 × 22)?

1. $\begin{array}{r}22\\\times 4\\\hline\end{array}$

2. $\begin{array}{r}31\\\times 6\\\hline\end{array}$

3. $\begin{array}{r}70\\\times 5\\\hline\end{array}$

V_D Preface each example with (24) pencils divided into (12) groups are ____?

1. $12\overline{)24}$
2. $15\overline{)45}$
3. $21\overline{)84}$

Level VI

VI_A How many—

1. ____ pints in 1 quart
2. ____ feet in 1 yard
3. ____ ounces in 1 pound

VI_B How much is—

1. $\begin{array}{r}\frac{1}{2}\\+\frac{1}{2}\\\hline\end{array}$

2. ½ of ¼ is
3. ½ ÷ 2 is

VI_C How many are (12 26's)?
or How much is (26 × 12)?

1. $\begin{array}{r}26\\\times 12\\\hline\end{array}$

2. $\begin{array}{r}34\\\times 27\\\hline\end{array}$

3. $\begin{array}{r}79\\\times 39\\\hline\end{array}$

VI_D Use idea of pencils divided into groups if necessary.

1. $14\overline{)322}$
2. $24\overline{)744}$
3. $38\overline{)988}$

Level VII

VII_A Write—

1. Three hundred six ____
2. Four thousand eight ____
3. Twenty dollars and eighteen cents ____

VII_B Which is smallest?

1. 321, 226, 127, 186
2. 1/6, 1/5, ⅓, ¾
3. 20.02, 21.2, 2.14, .418

VII_C

1. % means
2. π means
3. $\sqrt{\ }$ means

VII_D Word Problem.

1. The children were getting ready for a picnic. Five children each brought a bag of 8 sandwiches. How many sandwiches did they bright altogether?

2. Jeanne took back half of the sandwiches in her bag that were not needed. How many did she take back?

3. Ray gave out 5 sandwiches, Ruth gave out 8. How many did these two children give out together?

Level VIII

VIII_A How much is—

1. 2 & 3 take away 1
2. 5 & 4 take away 3
3. 6 & 2 take away 5

VIII_B How much is—

1. 4×1 add 2
2. 3×2 take away 3
3. 4×0 add 1

VIII_C How much is—

1. $2 \times (6 \div 3)$
2. $3 + 2\ (4 \times 2)$
3. $16 \div 2\ (1 + 1)$

VIII_D How much is—

1. $\begin{array}{r} 12 \\ \times 1.4 \\ \hline \end{array}$
2. 2% of 100
3. $.25 + \frac{1}{4}$

Appendix C

PUPIL EVALUATION—PRIMARY FORM

As a primary teacher you are aware that very few programs for gifted pupils have ever been attempted for primary children. As a result, there are almost no instruments for measuring first grade growth.

As a part of our study we need to obtain some measurement of growth for the report to the Legislature. Attached is a simple evaluation form for the first grade pupils in our study. You will be asked to complete this form three times during this year.

You should not spend an excessive amount of time, possibly not more than 10 to 20 minutes per pupil, but try to make your judgment as definitive and as objective as you possibly can.

Your contribution to the total knowledge and understanding of the kind of work that gifted children can do at the primary level will be deeply appreciated. With this simple evaluation form we expect to get one kind of indication of the growth patterns of the first grade pupils in our study.

Sincerely,

Pupil's Name ______________________ Teacher ______________________

Please indicate your best estimate of the child's individual status by placing an X in the appropriate box on each scale. When appropriate, will you please include your estimate of his current grade placement in the space marked *Comment.*

READING

No interest	Pre-primer	Primer	Independent reading	Reads anything independently
☐	☐	☐	☐	☐

Comment: ______________________

LANGUAGE ARTS

No contribution	Contributes occasionally	Contributes better ideas than most	Dictates detailed stories individually	Writes his own stories
☐	☐	☐	☐	☐

Comment: ______________________

ART

Meaningless production	Representation (child interpreted)	Meaningful representation (simple)	Detailed, complex representation
☐	☐	☐	☐

Comment:

MUSIC

Little participation	Participates on level of class	Use of original, creative ideas
☐	☐	☐

Comment:

ARITHMETIC

No interest	Uses simple counting	Understands simple processes	Understands and uses complex processes
☐	☐	☐	☐

Comment:

SOCIAL STUDIES

No participation	Works at level of class	Contributes better ideas than most	Contributes to class through independent research
☐	☐	☐	☐

Comment:

Appendix D

PUPIL INTEREST SURVEY

1. County
2. District
3. School
4. Pupil
5. Sex (circle) B G
6. Grade
7. What are your favorite TV programs?
8. What parts of the newspaper do you like to read best?
9. What are your favorite magazines?
10. What are the best books you have read this year?
11. Of what clubs or organizations are you a member?
    Offices held:
    Honor or recognition received:
12. Special activities you take part in at school:
13. In which sports are you interested?
    Do you play?
14. Your favorite recreation:
15. List your hobbies:
    Do you have other interests? Please list.
16. List any collections you have made and your age when you made them:
17. What is your favorite family recreation?
18. Have you taken trips outside of California? Where?
19. What kind of trips would you like to take if you could?
20. Do you have a job? What?

21. Vocational choice: ______

22. Parents' vocational choice for you: ______

23. What are your educational ambitions? ______

24. How do you plan to finance your education? ______

25. What are your favorite school subjects? ______

What subjects to you dislike? ______

26. What do you like best about school? ______

What do you like least? ______

Appendix E

PARENT QUESTIONNAIRE

All information on this form will be strictly confidential and will be used only for study purposes. Your responses will be used only in a group context and you will not be identified personally in any way. If you have a baby book for this child, will you please refer to it.

1. County ________ 2. District ________

3. School ________ 4. Name of child ________

5. Sex (circle) B G 6. Grade ________

7. Birthdate ________ 8. Age ________

9. City of birth ________ 10. Mother's age at birth of child ________

11. List ages for the following (in months or years and months):

Start of talking	a. ____	Bladder control fully established	g. ____
Use of sentences	b. ____	Bowel control fully established	h. ____
First tooth	c. ____	Tied shoes unassisted	i. ____
Sat without support	d. ____	Rode tricycle	j. ____
First step unassisted	e. ____	Rode bicycle	k. ____
First walked easily	f. ____	First learned to read	l. ____

12.

Schools attended	*City and state*	*Date (from– to–)*

13. Describe early indications of superior ability:

____

____

____

____

	(Check) Yes	No
14. Did the mother have health problems during pregnancy?	___	___
15. Was the birth difficult?	___	___
16. Has the child had any dietary problems?	___	___
17. Does the child have any speech problems?	___	___
18. Does the child complain about his health?	___	___
19. Is the child poorly co-ordinated?	___	___
20. Has the child had special problems with sleeping or rest?	___	___
21. Does the child have any serious health problems at present?	___	___

22. Has the child had any of the following:

	(Check)			(Check)	
	Yes	No		Yes	No
allergy	___	___	rheumatic fever	___	___
diabetes	___	___	tuberculosis contact	___	___
epilepsy	___	___	other serious illness	___	___
heart disease	___	___	major operations or injuries	___	___

23. Comments regarding any area marked *Yes*:

24. *Name*	*Religious preference*	*Occupation*	*Highest grade attended (circled):*	*List degrees held*
Father: ______ Check: real ( ) step ( ) foster ( )		Job title: Description:	Below 8 8 9 10 11 12 13 14 15 16 Above 16	
Mother: ______ Check: real ( ) step ( ) foster ( )		Job title: Description:	Below 8 8 9 10 11 12 13 14 15 16 Above 16	
Guardian: ______		Job title: Description:	Below 8 8 9 10 11 12 13 14 15 16 Above 16	
Other adults in home ______				

25. Brothers and sisters:

Names	*Ages*
______	______
______	______
______	______

26. Club, societies, church groups to which parents belong:

Father ______ Mother ______

______ ______

______ ______

27. Hobbies of:
Father ______________ Mother ______________
______________ ______________

28. Father's vocational goal for child (Be specific) ______________
Mother's vocational goal for child ______________

29. Do you own your home? Yes ______ No ______

30. Yearly income of: (check)

	Father	*Mother*	*Approximate value of home if owned √ (Check)*
Below $5,000	______	______	______
5-10,000	______	______	______
10-15,000	______	______	______
15-20,000	______	______	______
Over 20,000	______	______	______

31. If you rent, please check:

	Type of housing	*Number of rooms*
Furnished apartment	( )	______
Unfurnished apartment	( )	______
Furnished house	( )	______
Unfurnished house	( )	______
Trailer	( )	______

32. Do you have outside help in the home? Yes ______
(Check)
No ______

33. Child has own room ( ); shares with others ______
(number)

34. Approximate number of adult books in home ______

35. Magazines read regularly ______________
____

36. Private lessons taken by child:

Kind	*How long taken*	*Frequency*
______	______	______
______	______	______

37. Trips child has taken:

Place	*Age*
______	______
______	______
______	______

38. Things the family does together: ______________
____
____

39. Child's recreational choices: ____________________

40. Choice of playmates (ages, sex, numbers, etc.) ____________________

41. How does he get along with his playmates? ____________________

42. Preferences when he is alone ____________________

43. Child's membership in out-of-school clubs or groups ____________________

44. Child's reading interests (favorite books—type, titles) ____________________

45. Amount of child's reading per week (estimate) ____________________

46. Child's hobbies and collections ____________________

47. Child's special talents or skills ____________________

48. Child's special problems or needs at home ____________________

49. How does the child get along with others in the home? ____________________

50. Child's home responsibilities ____________________

51. Does he have an allowance? Yes ______ No ______ Amount per week ______

52. Discuss the attitude of the child toward school ____________________

Does your attitude differ? ______ If so, in what way? ______

______

______

______

53. Child's school needs as you see them ______

______

______

______

54. Describe the child as you see him (personality, attitudes toward home, work, friends)

______
Name of informant

______
Relationship to child

______
Date

Appendix F

HEALTH REPORT—TEACHER OBSERVATIONS

1. County 2. District

3. School 4. Pupil

5. Sex (circle) B G 6. Grade

Use check only to indicate areas needing attention. Absence of checks will indicate that no problems exist.

Comments on areas needing attention

Has frequent absences due to illness . . . 1.
Appears excessively thin . . . . 2.
Appears excessively fat . . . . 3.
Tires easily . . . . 4.
Has poor co-ordination . . . . 5.
Has poor posture . . . . 6.
Complains frequently of headaches . . . . 7.
Has frequent colds . . . . 8.
Has skin eruptions . . . . 9.
Has speech defect . . . . 10.
Complains frequently of upset stomach . . 11.
Has frequent stys . . . . 12.
Has crossed eyes . . . . 13.
Appears to have vision difficulty . . . . . . 14.
Has discharge from ears or cotton in ears 15.
Complains of earaches . . . . 16.
Appears to have hearing difficulty . . . . . 17.
Is a persistent mouth breather . . . . 18.
Complains frequently of sore throat . . . . 19.
Complains of toothache . . . . 20.
Has unclean or decayed teeth . . . . 21.
Seems overly aggressive . . . . 22.
Frequently loses temper . . . . 23.
Appears nervous . . . . 24.
Appears shy or withdrawn . . . . 25.
Is inattentive . . . . 26.
Other . . . . 27.

Signature of teacher Date

Appendix G

HEALTH REPORT—MEDICAL OBSERVATIONS

1. County ________ 2. District ________
3. School ________ 4. Pupil ________
5. Sex (circle) B G 6. Grade ________
Vision: R ____ L ____ Corrected: R ____ L ____
Hearing: R ____ L ____ Hearing defect: ________

Use check only to indicate areas needing attention. Absence of checks will indicate that no problems exist.

Comments on areas needing attention

Nutrition . . . . 1. ____
Skin . . . . 2. ____
Eyes . . . . 3. ____
Ears . . . . 4. ____
Nose . . . . 5. ____
Teeth . . . . 6. ____
Throat . . . . 7. ____
Heart . . . . 8. ____
Lungs . . . . 9. ____
Abdomen . . . . 10. ____
Genitalia . . . . 11. ____
Orthopedic status . . . . 12. ____
Posture . . . . 13. ____
Neurological status . . . . 14. ____
General physical status . . . . . . 15. ____
General emotional status . . . . . . 16. ____
Other . . . . 17. ____

Signature of physician ________________ Date ________

Appendix H

ADJECTIVE CHECK LIST

Teacher District

Room Date

Beside each word or group of words, write the first and last names of one to three children in your classroom whose names *you first think of* in relation to the term. Work rapidly. Relate your reactions to the *classroom* situation. Names of individuals may be used as many times as you wish.

1. Disinterested
2. Co-operative
3. Aware of others' feelings
4. Unreliable
5. Inattentive
6. Wants to excel
7. Well accepted
8. Poor store of information
9. Poor comprehension
10. Good vocabulary
11. Defiant
12. Logical planner
13. Unco-operative
14. Generalizes well
15. Poor self-control
16. Needs recognition
17. Original
18. Responsible
19. Mature
20. Lazy
21. Careless
22. Realistic
23. Methodical
24. Remembers well

25. Reasons well ____________________
26. Seeks knowledge ____________________
27. Plans ahead ____________________
28. Hostile ____________________
29. Suspicious ____________________
30. Good leader ____________________
31. Aggressive ____________________
32. Perseveres at work ____________________
33. Disobedient ____________________
34. Poor vocabulary ____________________
35. Adapts to change ____________________

Appendix I

TEACHER REACTION SHEET—ELEMENTARY[1]

1. County ____ 2. District ____
3. School ____ 4. Pupil ____
5. Sex (circle) B G 6. Grade ____
7. Teacher ____

If you were rating all children in your class, approximately ¼ would rate "1" in each question, ½ would rate "2", and ¼ would rate "3". Of course, this estimate need not apply to the particular group being studied in this project. Check all items which apply in your class.

I. In games he rates (check wherever appropriate):

	Outstanding	*Average*	*Weak*
a. as a good referee	____	____	____
b. as a captain or leader	____	____	____
c. as the first choice "on a side"	____	____	____
d. as eager to join in the games	____	____	____

II. Check below the present level of this pupil's classroom achievement in relation to his actual grade placement:

	Outstanding	*Average*	*Weak*
a. Reading	____	____	____
b. Arithmetic	____	____	____
c. Language	____	____	____
d. Spelling	____	____	____
e. Social Studies	____	____	____
f. Science	____	____	____
g. Music	____	____	____
h. Art	____	____	____

III. In class (check wherever appropriate):

a. His responses are 1. quick ____ 2. like others ____ 3. studied ____.
b. He 1. usually ____ 2. sometimes ____ 3. seldom ____ completes class assignments.
c. He is observant 1. usually ____ 2. sometimes ____ 3. seldom ____.
d. He is full of ideas 1. usually ____ 2. sometimes ____ 3. seldom ____.
e. He participates freely 1. usually ____ 2. sometimes ____ 3. seldom ____.
f. He volunteers to do things 1. usually ____ 2. sometimes ____ 3. seldom ____.
g. He volunteers to answer questions 1. usually ____ 2. sometimes ____ 3. seldom ____.

---

[1] Adapted from: "More Capable Learner Data Sheet," Los Angeles County Superintendent of Schools, Division of Research and Guidance, developed by Corabelle Clark and Eleanor Dyer, Compton; Lyman Peterson, Paramount; Marguret Lund, Manhattan Beach; Beatrice Lantz, Division of Research and Guidance, Office of the Los Angeles County Superintendent of Schools; Clarice Bennett, Culver City.

h. He volunteers to express ideas 1. usually ___ 2. sometimes ___ 3. seldom ___.
Especially in ___

IV. Personal-social behavior (check after appropriate description):

a. 1. speaks rarely ___ 2. upholds his end of talk ___ 3. talks a great deal ___

b. 1. timid ___ 2. like others of his age ___ 3. very confident ___

c. 1. defiant ___ 2. ordinarily obedient ___ 3. submissive ___

d. 1. rude ___ 2. respectful as others of his age ___ 3. extremely polite ___

e. 1. never criticizes others ___ 2. comments on weaknesses and faults ___ 3. extremely critical ___

f. 1. stolid (rare changes of mood) ___ 2. happy or unhappy as conditions warrant ___ 3. very happy or very unhappy ___

g. gives up very easily ___ 2. tries ___ 3. Obstinate (never gives up) ___

h. 1. stubborn ___ 2. conforms ___ 3. easily persuaded ___

i. 1. submissive ___ 2. self-controlled ___ 3. explosive ___

j. 1. dejected ___ 2. good humored ___ 3. hilarious ___

k. 1. constantly worrying ___ 2. worries only with cause ___ 3. never worries (carefree) ___

l. 1. apathetic (no emotional response) ___ 2. Healthy emotions ___ 3. extreme emotional reactions ___

m. 1. contrary ___ 2. open-minded ___ 3. too easily influenced ___

n. 1. impulsive ___ 2. acts with reasonable care ___ 3. very cautious and careful ___

o. 1. usually a leader ___ 2. alternately a leader or a follower ___ 3. usually a follower ___

Please tell briefly the kind of person you think this individual is.

Appendix J

TEACHER REACTION SHEET—SECONDARY

1. County ______________________
2. District ______________________
3. School ______________________
4. Student ______________________
5. Sex (circle) B G
6. Grade ______________________

Please fill in the appropriate blank spaces as they pertain to the class in which this student is enrolled. Check the present level of this student's classroom achievement in relation to his actual grade placement. Please return this form to the Principal's Office.

CLASSROOM ACHIEVEMENT

	Outstanding	*Average*	*Weak*
I. English			
Reading	______	______	______
Handwriting	______	______	______
Spelling	______	______	______
Essay writing (creativity, originality)	______	______	______
II. Mathematics (specify)			
Reasoning	______	______	______
Computation	______	______	______
III. Science (specify)			
Knowledge of principles	______	______	______
Laboratory performance	______	______	______
IV. Foreign language (specify)			
Understanding	______	______	______
Pronunciation	______	______	______
V. Social Studies (specify)			
Understanding	______	______	______
VI. Physical Education			
Ability as referee	______	______	______
Ability as leader	______	______	______
As first choice "on a side"	______	______	______
As eager to join in activities	______	______	______
VII. Art, drama, music (specify)			
Understanding	______	______	______
Performance	______	______	______
VIII. Other (specify)	______	______	______

IX. In class (check wherever appropriate):

a. His responses are 1. quick ___ 2. like others ___ 3. studied ___.

b. He 1. usually ___ 2. sometimes ___ 3. seldom ___ completes class assignments.

c. He is observant 1. usually ___ 2. sometimes ___ 3. seldom ___.

d. He is full of ideas 1. usually ____ 2. sometimes ____ 3. seldom ____.
e. He participates freely 1. usually ____ 2. sometimes ____ 3. seldom ____.
f. He volunteers to do things 1. usually ____ 2. sometimes ____
3. seldom ____.
g. He volunteers to answer questions 1. usually ____ 2. sometimes ____
3. seldom ____.
h. He volunteers to express ideas 1. usually ____ 2. sometimes ____
3. seldom ____.
Especially in ____________________

Remarks (include strengths, weaknesses). Tell briefly the kind of person you think this individual is.

Period of above ________ Room ________ Teacher ________________

Appendix K

INTERVIEW SUMMARY

1. County .... 2. District ....

3. School .... 4. Pupil ....

5. Sex (circle) B G 6. Grade ....

7. Interviewee: (check) Pupil .... Teacher .... Parent .... M F (Circle)

8. Interviewer .... 9. Date ....

Please record as completely as possible in the spaces below. Use the reverse side if necessary.

A. *Motivation for school*

B. *Pupil's degree of confidence in peer relationships*

C. *Leadership*

Appendix L

OPEN-END QUESTIONS

To Selected Teachers

At some time during the next two weeks, within your regular language arts activities, will you please ask all of your pupils to write on the two following questions:

(1) *Who are the persons whom you have admired most?* Name one living and one dead and explain why you chose them.

(2) *Should special plans be made in school for bright students?* Please explain your answer.

If it is at all possible, please space the writing on these topics so that at least a week intervenes. When both papers are completed, please turn them in to your principal. Thank you very much.

Appendix M

PARENT EVALUATION OF PUPIL

DEAR PARENTS:

We need to impose upon you for a final time to get your reaction to your child's experiences as a participant in the State Study. It is highly important to us to have your evaluation of the program's effectiveness.

We shall appreciate it very much if you will fill out the attached page and return it as soon as possible to

____

____

____

Thank you very much.

PARENT EVALUATION OF PUPIL

Pupil's Name ______________

Will you please think of your child at the present time in comparison to last year. As a result of his participation in the State Study, please rate him on the following items. Place the letters a, b, c, d, and e on the line following each item according to the scale below. You may have difficulty in responding to some of the items. Please make the best estimate that you can.

(a) Much less (b) Less (c) About the same (d) More (e) Much more

1. Ability to think things through for himself . . . . ______
2. Knowledge of subject matter areas (science, social studies, and others he has taken) . . . . ______
3. Interest in school . . . . ______
4. Ability to see relationships . . . . ______
5. Ability to find information . . . . ______
6. Ability to work well by himself . . . . ______
7. The liking and respect of other pupils for him . . . . ______
8. Ability to judge the usefulness of facts . . . . ______
9. Ability to get along well with his teacher(s) . . . . ______
10. Enjoyment of learning . . . . ______
11. Knowledge of arithmetic, spelling, and other basic skills . . . . ______
12. Curiosity about learning new things . . . . ______
13. Ability to accept responsibility . . . . ______
14. Opportunity to make things, experiment, and use ideas . . . . . . ______
15. Knowledge of his strengths and weaknesses . . . . ______
16. Willingness to do work as a leader . . . . ______

Please answer the questions that follow

17. Has participation in the study helped him? (Yes or no) ______
Please explain.

______

______

18. Has participation created problems for him? (Yes or no) ______
Please explain.

______

______

19. Would you like to have the program continued? (Yes or no) ______
Please explain.

______

______

20. What changes, if any, would you suggest?

______

______

______

______

Name ______

Address ______

Telephone ______

Appendix N

TEACHER EVALUATION OF PUPIL

....	....	....
Pupil	**Teacher**	**Date**

Please evaluate this pupil by placing the letter a, b, c, d, e on the line following each item according to the scale below. Think of him in relation to his performance at the start of the program.

(a) Marked loss
(b) Diminishing
(c) About the same
(d) Increasing
(e) Marked increase

1. Ability to solve problems . . . .
2. Knowledge of subject matter areas . . . .
3. Interest in school . . . .
4. Ability to think in terms of the whole and to see parts in relation to the whole . . . .
5. Research skills . . . .
6. Ability to work independently . . . .
7. Status in peer group . . . .
8. Critical thinking ability . . . .
9. Rapport with teacher . . . .
10. Motivation toward learning . . . .
11. Knowledge of basic skills (fundamentals) . . . .
12. Intellectual curiosity . . . .
13. Ability to accept responsibility . . . .
14. Opportunity to create and experiment with ideas and things . . . .
15. Self-understanding . . . .
16. Acceptance of leadership roles . . . .

Appendix O

PUPIL SELF-EVALUATION

Pupil's Name ____________________

Will you please think of yourself at the present time in comparison to last year. As a result of *this year's* work, please rate yourself on the following items. Place the letters *a, b, c, d,* and *e* on the line following each item according to the scale below.

(a) Much less (b) Less (c) About the same (d) More (e) Much more

1. Ability to think things through for myself . . . . ______
2. Knowledge of subject matter areas (science, social studies, and others I have taken) . . . . ______
3. Interest in school . . . . ______
4. Ability to see how things go together in a situation (see relationships) ______
5. Ability to find information . . . . ______
6. Ability to work well by myself . . . . ______
7. The liking and respect of other pupils for me . . . . ______
8. Ability to judge the usefulness of facts . . . . ______
9. Ability to get along with my teacher(s) . . . . ______
10. Enjoyment of learning . . . . ______
11. Knowledge of arithmetic, spelling and other basic skills . . . . ______
12. Curiosity about learning new things . . . . ______
13. Ability to accept responsibility . . . . ______
14. Opportunity to make things, experiment, and use ideas . . . . ______
15. Knowledge of my strengths and weaknesses . . . . ______
16. Willingness to do work as a leader . . . . ______

Please answer the questions that follow:

17. Has the school year been helpful to you? Yes ______ No ______
Please explain.

____

____

18. Has any part of the school work this year created any problems for you? Yes ______ No ______
Please explain.

____

____

19. Would you like to continue in a group like the one you had this year? Yes ______ No ______

____

____

20. What changes, if any would you suggest?

____

____

____

____

____

Appendix P

SELF-EVALUATION BY TEACHERS IN PROJECT

Teacher	Date

One objective of the State Study is to increase teacher confidence and competence in teaching gifted children. We would, therefore, like your subjective evaluation on your current feelings in this area.

Please evaluate yourself on the following items, using *a*, *b*, *c*, *d* according to the scale below.

(a) Diminishing	(c) Increasing
(b) About the same	(d) Marked increase

1. Strength and skill as a teacher . . . . ______

2. Knowledge of subject areas . . . . ______

3. Appreciation of "gifted" pupils . . . . ______

4. Enthusiasm for your particular classroom plan in the State Study . . . ______

If no reaction, leave blank.

1. What changes would you suggest in your particular educational plan? Why?

2. In your opinion, what are the values of your particular plan in the State program?

3. How has participation in the State Study helped you?

4. List any problems created by your participation in the State Study.

Appendix Q

SOCIAL RELATIONS DATA

TO SELECTED TEACHER:

To give us needed social-relations data, will you please supply each pupil in your class with a piece of paper this size. *Then give them the following directions:*

To help me know all of you better, will you please write your name at the top of this paper, and down the side put the numbers 1, 2, and 3. Beside number 1, write the first and last name of your best friend in this class. Beside 2, write your second choice, and beside 3, your third choice. Please do not talk this over. *No one in the room will see your papers.*

(Teachers in kindergarten and first grade will need to record choices of individuals.)

Thank you very much.

Appendix R

EVALUATION BY COLLEGE INSTRUCTORS OF HIGH SCHOOL STUDENTS IN THEIR CLASSES

DEAR ....:

In your class during the past semester you have had ....
from .... High School.

To help us in the State Study, we would appreciate your checking each of the following items as each relates to the student named:

	Excellent	*Average*	*Poor*	*Unable to Judge*
1. Motivation	☐	☐	☐	☐
2. Attitude	☐	☐	☐	☐
3. Participation	☐	☐	☐	☐
4. Attendance	☐	☐	☐	☐
5. Promptness with assignments	☐	☐	☐	☐
6. Relationships with other students	☐	☐	☐	☐

Comments: (If you desire, you may include comments on value(s), if any, of allowing twelfth grade gifted high school students to attend college classes.)

Semester grade: ....

A stamped, addressed envelope is enclosed for your convenience. Thank you very much.

o

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